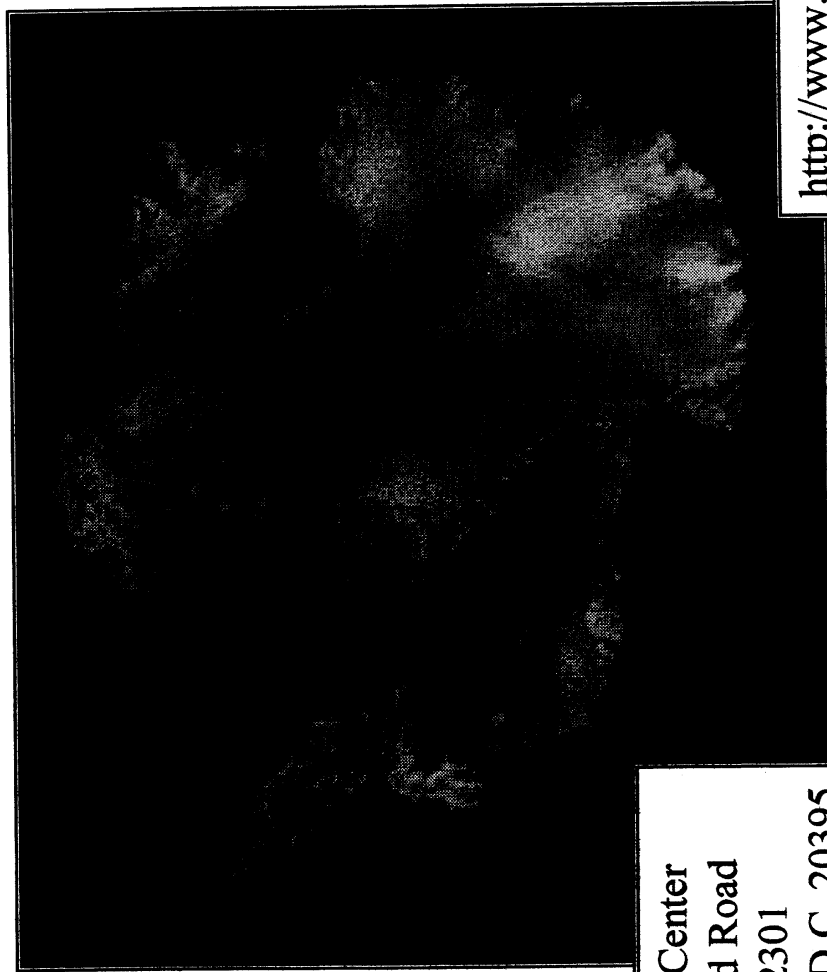


**National Ice Center
Antarctic Sea Ice Atlas
1995**

19990722 018



National Ice Center
4251 Suitland Road
FB4, Room 2301
Washington D.C. 20395

<http://www.natice.noaa.gov>

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PREFACE

The National Ice Center (NIC), under sponsorship of the United States Navy, the United States Coast Guard, and the National Oceanic and Atmospheric Administration (NOAA), provides sea ice analyses encompassing the "Arctic" and the "Antarctic". These analyses continue the data set established under our previous name, the Joint Ice Center. These atlases continue the near real-time integration of remotely sensed data and point observations and differ only in that the Arctic and Antarctic are split into two separate publications per hemisphere per year.

This publication is the 10th edition of the annual "Antarctic Sea Ice Atlas" published in hard copy format by the NIC. The atlas contains weekly charts depicting the sea ice extent and coverage in the Southern Hemisphere from the first week of January through December 1995.

The NIC uses a wide variety of data sources in the production of sea ice analyses. Table 1 lists the data sources used to produce the Antarctic weekly ice analyses contained in this publication. The line types used in the analyses provide metadata information with regard to sensor type. Solid lines depict boundaries derived from: point observations, Defense Meteorological Satellite Program Operational Line Scan (DMSP OLS) and NOAA Advanced Very High-Resolution Radiometer (AVHRR) data. Dash-dot-dotted line depicts boundaries derived from DMSP Special Sensor Microwave Imager (SSM/I), and dashed lines depict boundaries derived from forecast models and climatology.

Please direct questions or comments to the NIC Liaison Branch, at phone number (301) 457-5303 extension 311 or 303, facsimile number (301)457-5300, or electronic mail address: lialison@natice.noaa.gov

Atlas addendum: This publication is intended to serve as an interim solution, while transitioning to distribution via CD-ROM. The purpose of this atlas is to make all National Ice Center (NIC) sea ice charts available to customers using NIC designated archive centers. By fall 1999, it is anticipated that NIC will complete and distribute Arctic/Antarctic ice atlases on CD-ROM for 1995, 1996, 1997 and 1998. It should be noted that the charts presented in this atlas have been drawn by hand for operational use. Corrections to "hand annotations" are visible on some of the charts in the atlas.

From	To	Sensor Platform	Sensor and Type	Spectral Region	Resolution	Coverage
01-95	12-95	DMSP F-10, 11, 12, 13	OLS Fine: VIS IR SSM/I	0.4 to 1.1 μm 10.2 to 12.8 μm 19.35 and 37GHz	0.55 km 25 km	3,012km 3,012km
01-95	12-95	NOAA 12, 14	AVHRR: HRPT/LAC VIS NIR IR	0.58 to 0.68 μm 0.72 to 1.10 μm 3.55 to 3.9 μm	1.1km at nadir; 2.5km at swath edge	4,000km

TABLE 1. 1995 Antarctic Satellite Data Sources

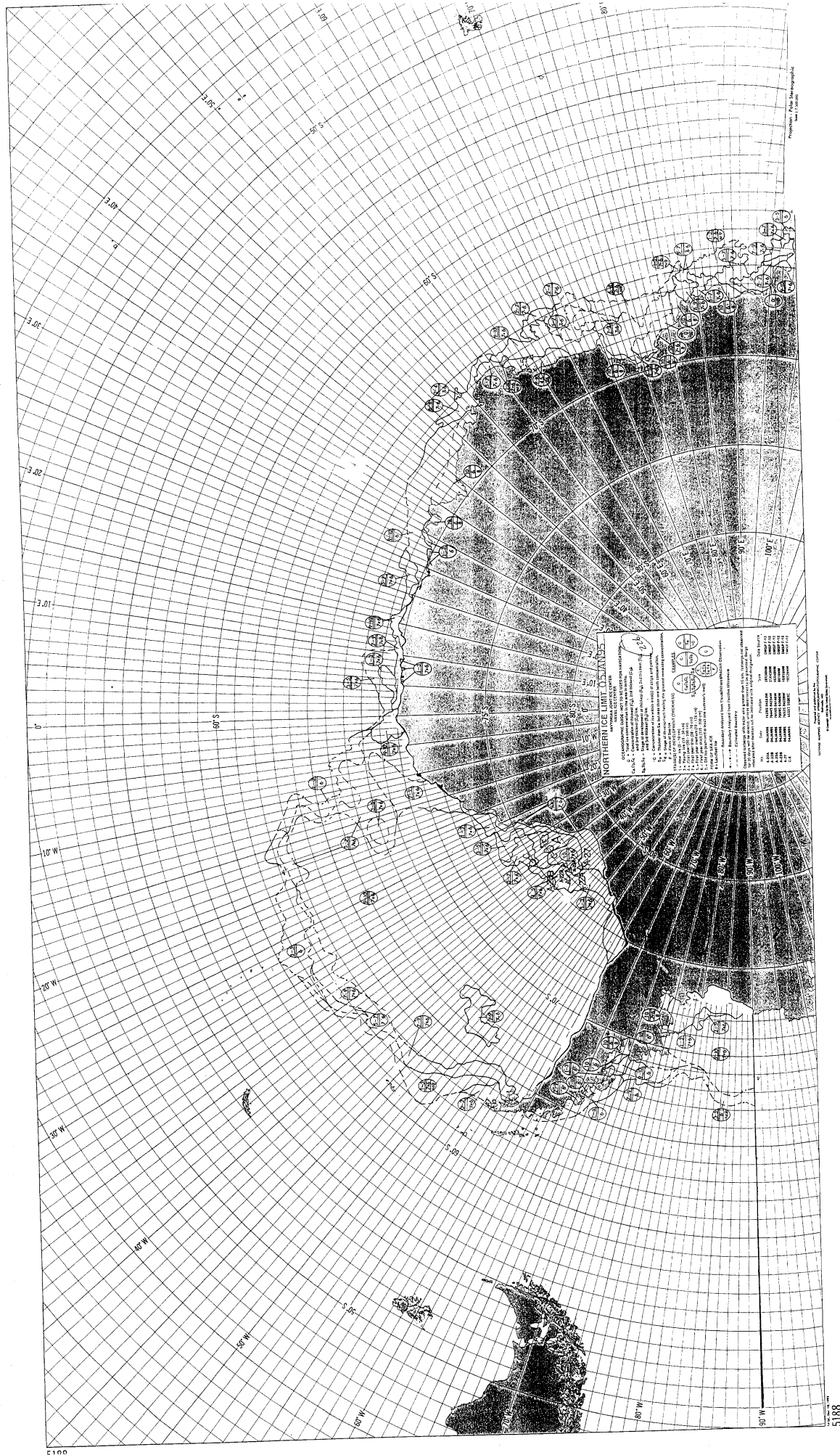
Note: DMSP F-13 launched 03/24/95

Abbreviations and Acronyms:

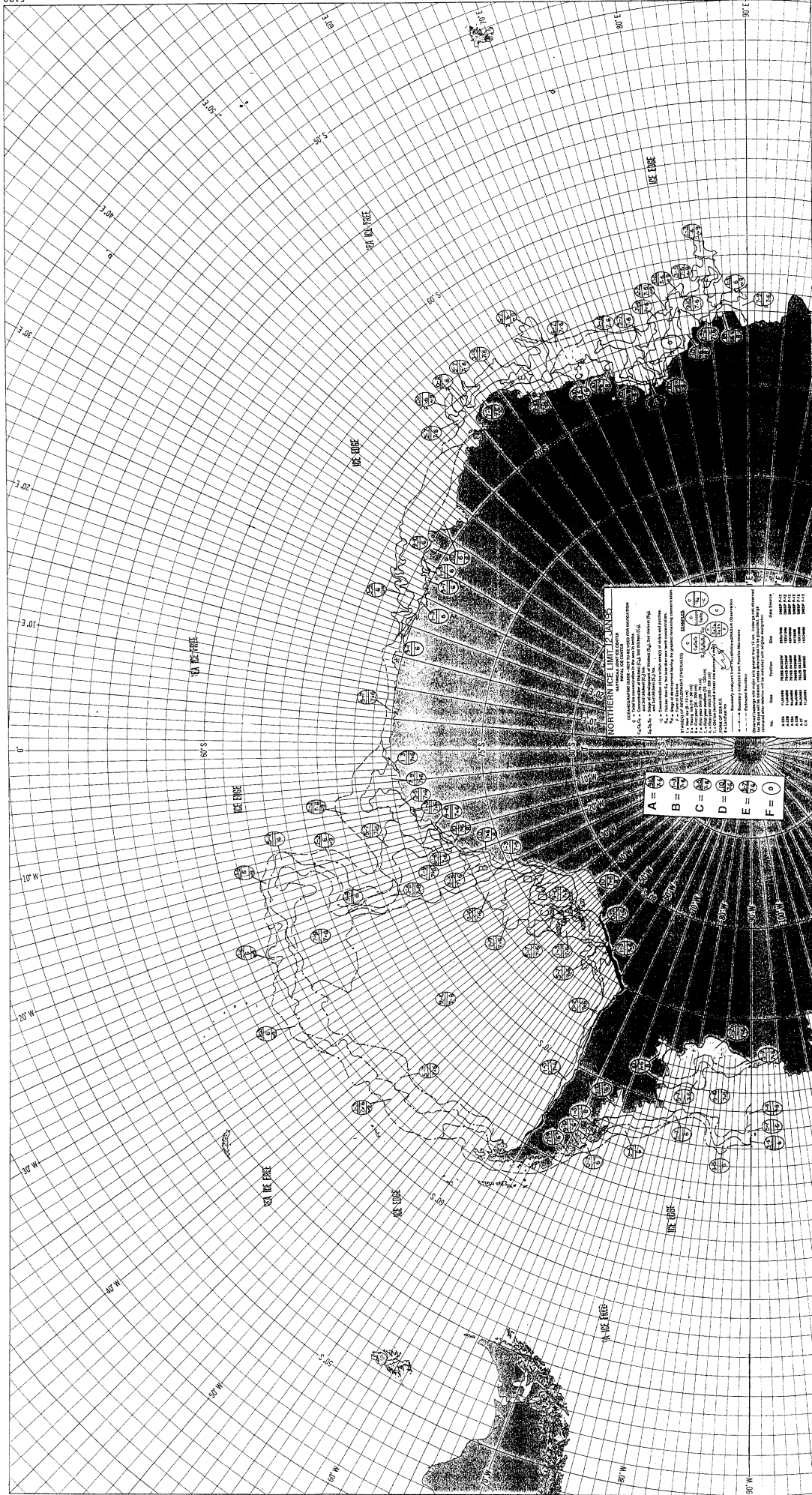
AVHRR- Advanced Very High Resolution Radiometer
cm- centimeter
GHz- Gigahertz
HRPT- High Resolution Picture transmission
IR- Infrared
km- kilometer
LAC- Local Area Coverage
NIR- Near Infrared
OLS- Operational Linescan System
SSM/I- Special Sensor Microwave Imager
 μm - micrometer
VIS- Visible

Antarctica satellite composite courtesy of United States Geological Survey, Flagstaff, AZ.
(<http://TerraWeb.wr.usgs.gov/TRS/projects/Antarctica/color/images>).

Prepared under the authority of Commander, Naval Oceanography Command, Stennis Space Center, MS 39529-5000



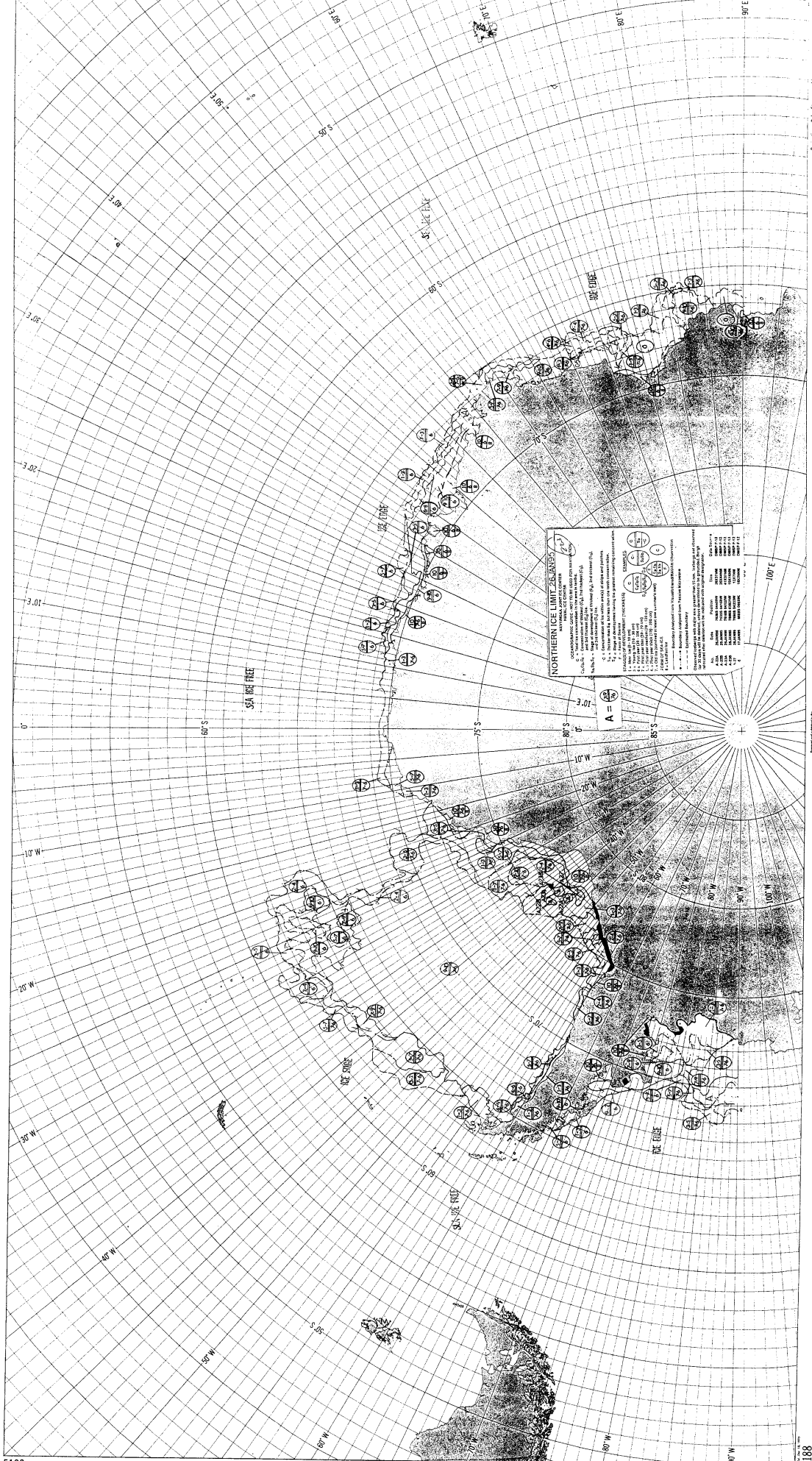


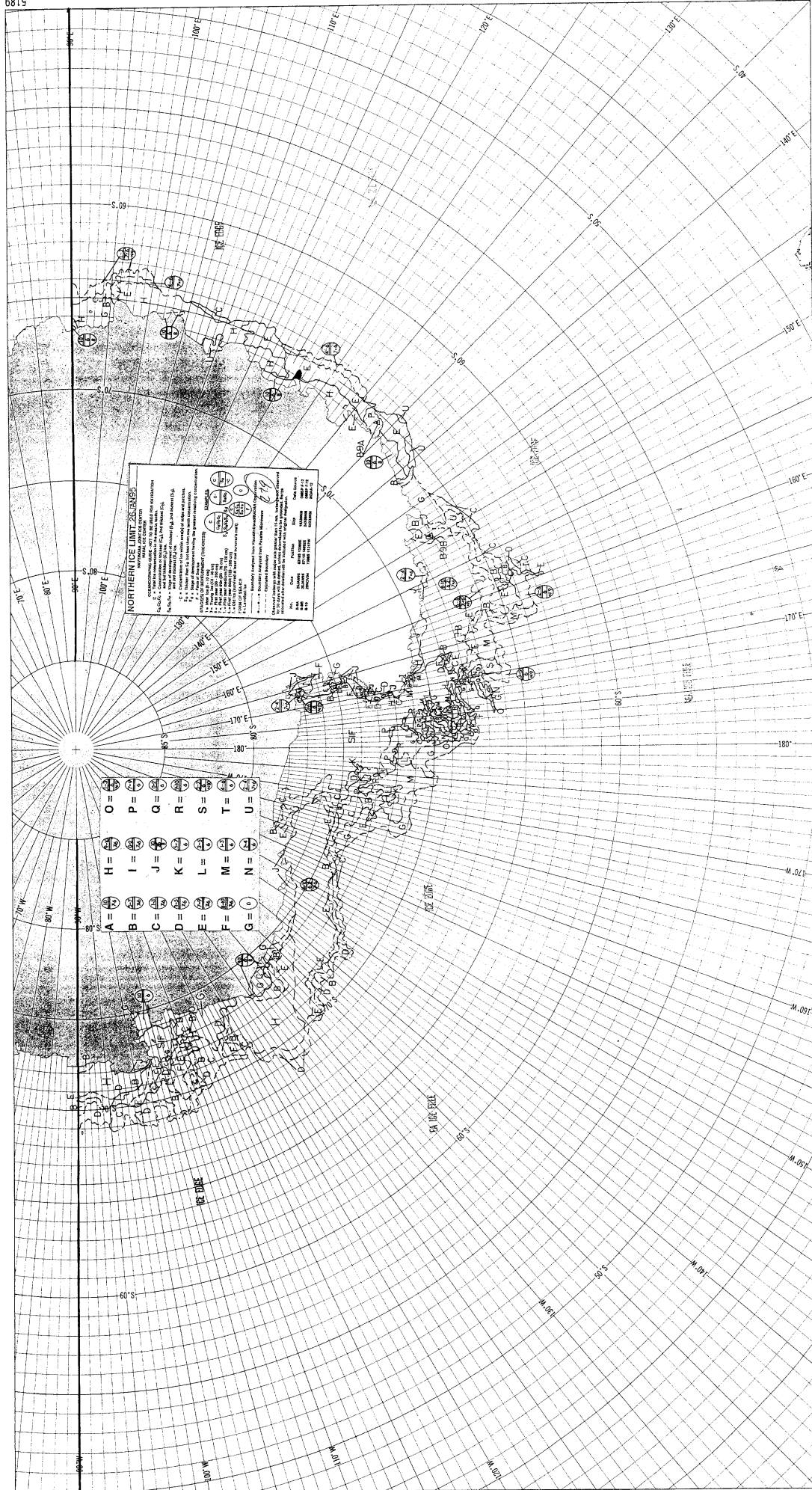


NAVIGATIONAL AID SYMBOLS



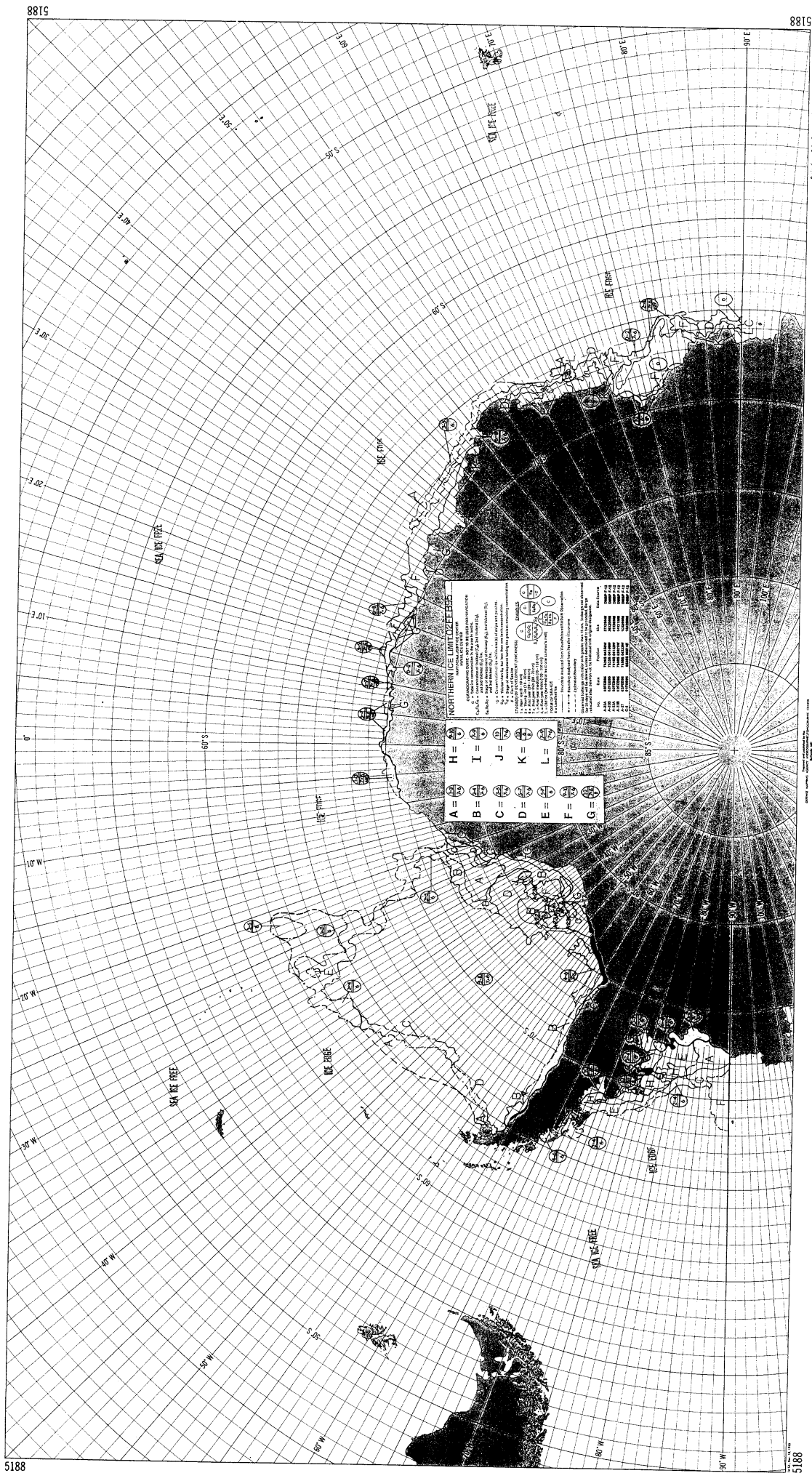






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NORTH ATLANTIC OCEAN

LEGEND

A = **B =** **C =** **D =** **E =** **F =** **G =** **H =** **I =** **J =** **K =** **L =**

NOTES

1. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

2. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

3. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

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5. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

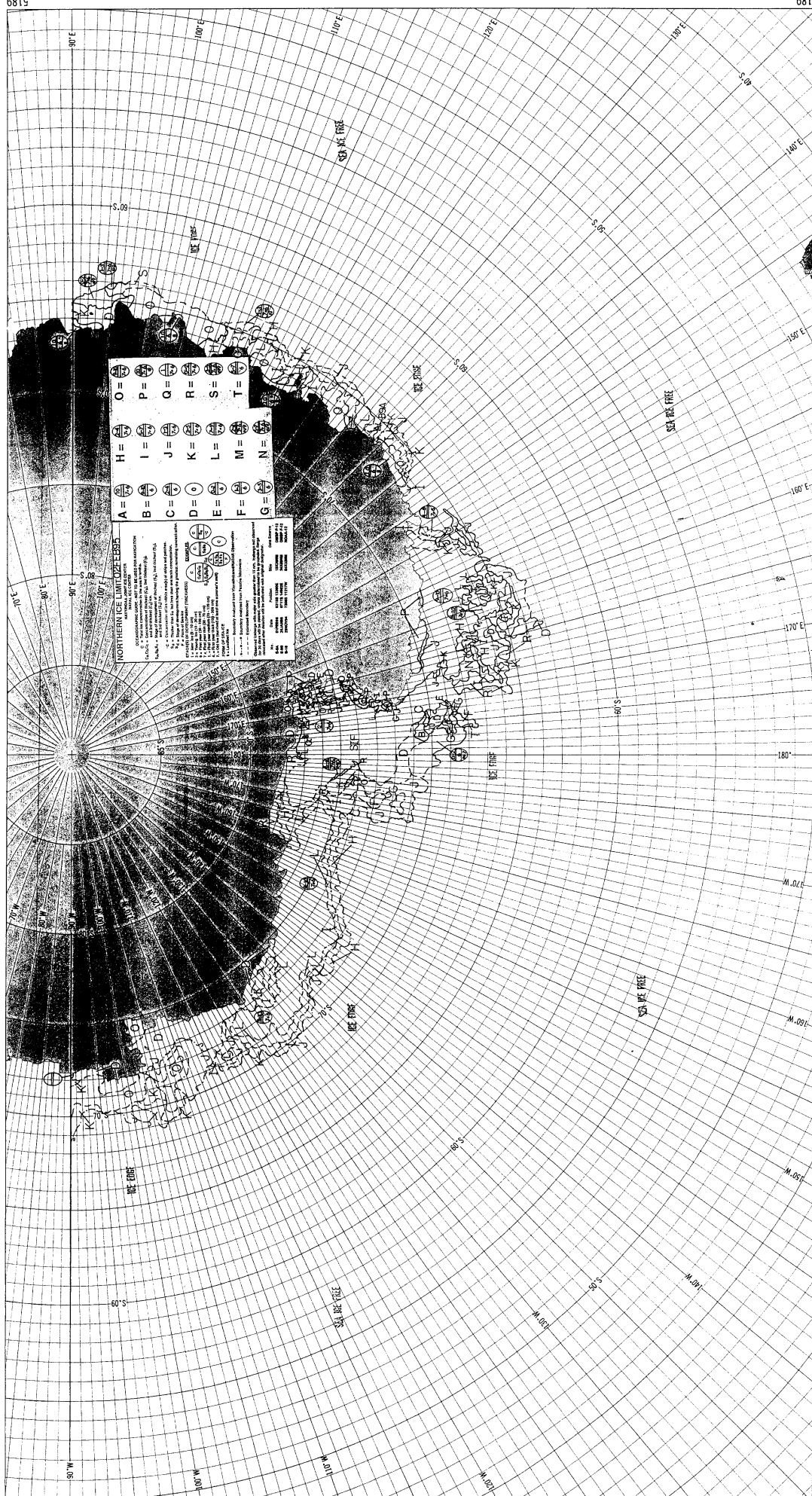
6. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

7. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

8. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

9. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.

10. Icebergs are shown by their position, size, and direction of drift. The size is indicated by the number of the symbol. The direction of drift is indicated by the arrow. The position is indicated by the letters A through L.



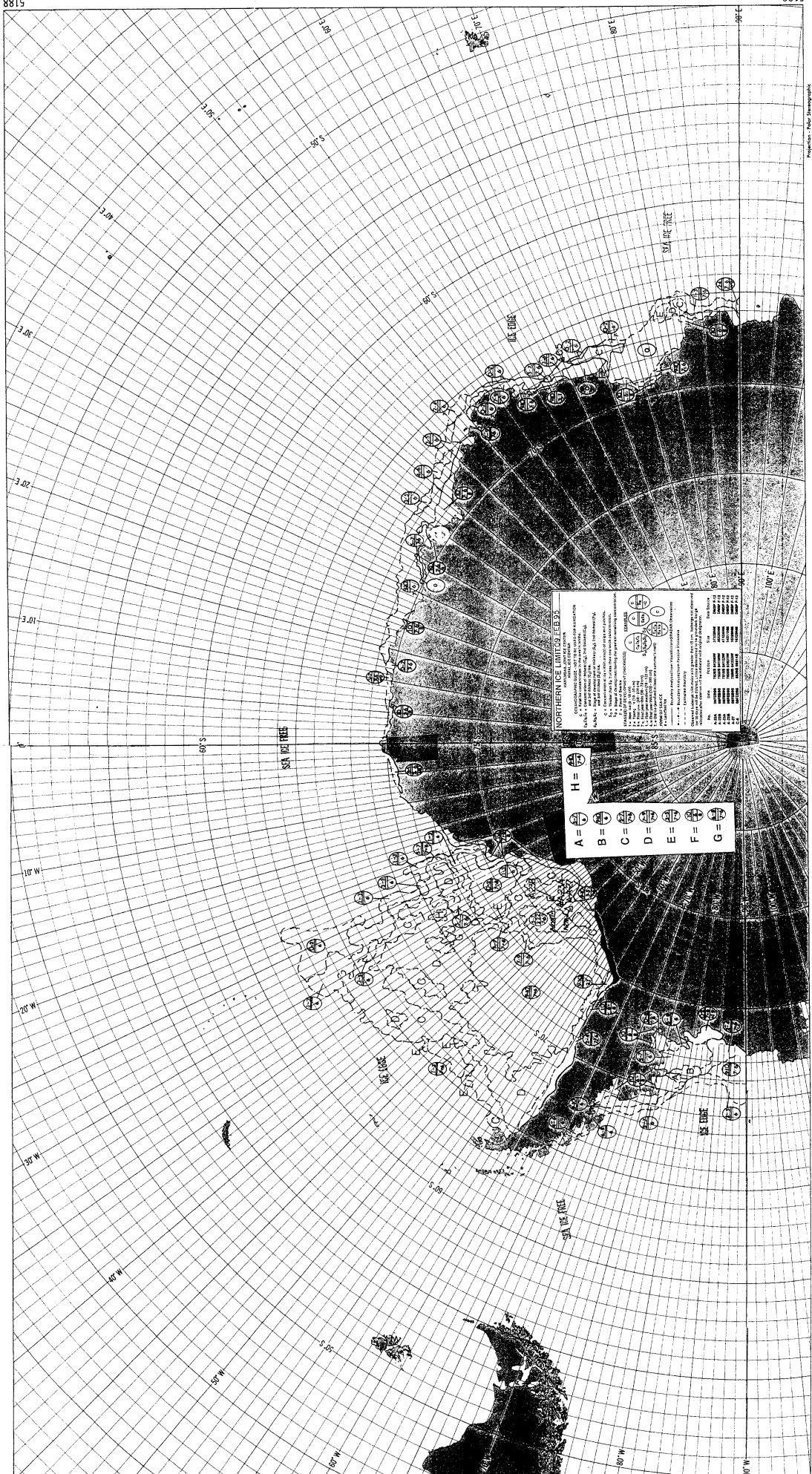
NORTHERN ICE LIMITS 1985

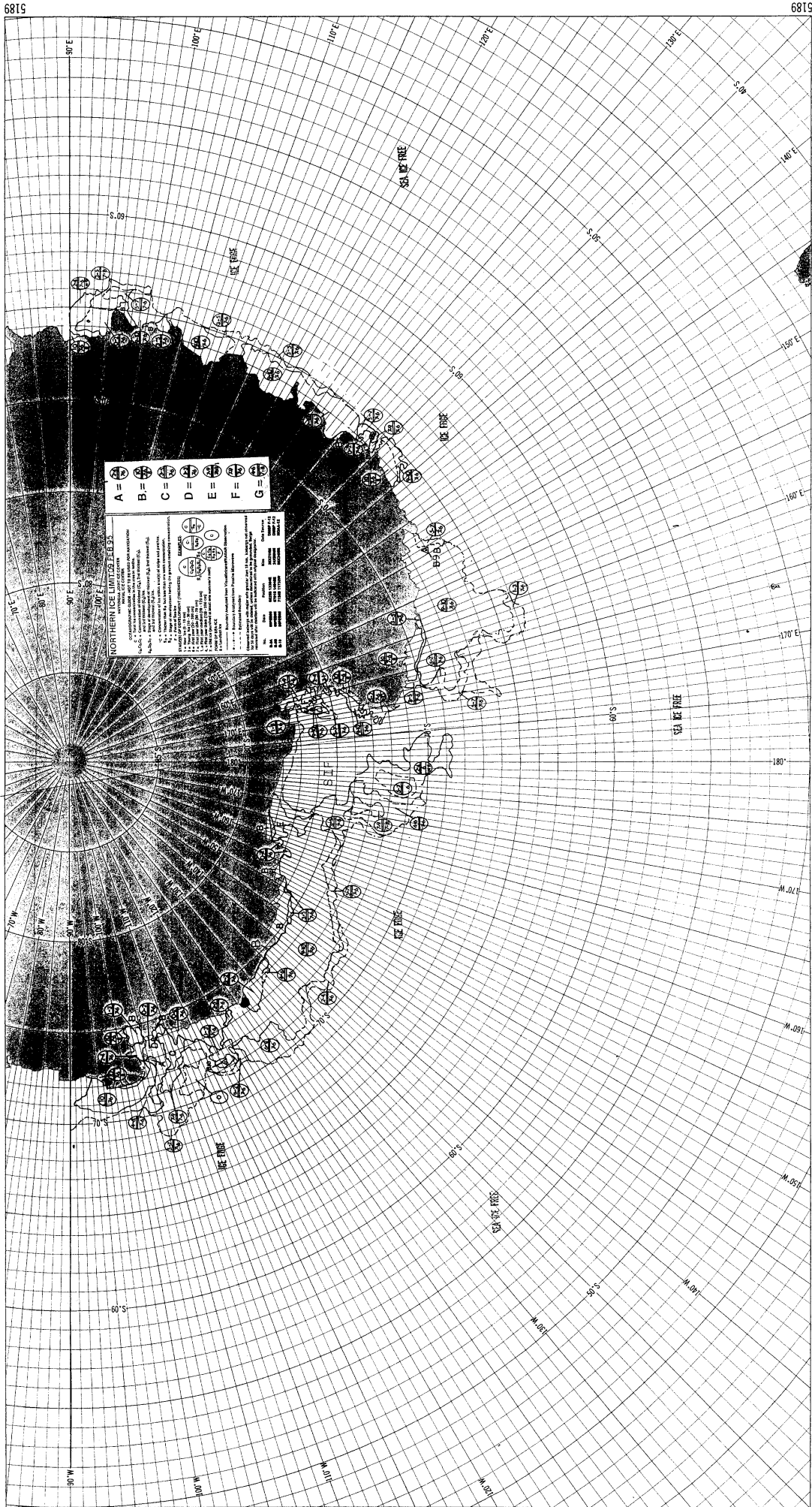
Source: U.S. Coast Guard, Office of Navigation, and U.S. Navy, Naval Hydrographic Office. Data is based on a combination of satellite and ship-based observations. The limits are shown for the month of January, which is the most restrictive time of year for navigation in the Arctic region.

Legend:

- 1. Areas with ice thicknesses of 1.5 meters or more.
- 2. Areas with ice thicknesses of 1.0 to 1.5 meters.
- 3. Areas with ice thicknesses of 0.5 to 1.0 meters.
- 4. Areas with ice thicknesses of 0.2 to 0.5 meters.
- 5. Areas with ice thicknesses of 0.1 to 0.2 meters.
- 6. Areas with ice thicknesses of 0.05 to 0.1 meters.
- 7. Areas with ice thicknesses of 0.02 to 0.05 meters.
- 8. Areas with ice thicknesses of 0.01 to 0.02 meters.
- 9. Areas with ice thicknesses of 0.005 to 0.01 meters.
- 10. Areas with ice thicknesses of 0.002 to 0.005 meters.
- 11. Areas with ice thicknesses of 0.001 to 0.002 meters.
- 12. Areas with ice thicknesses of 0.0005 to 0.001 meters.
- 13. Areas with ice thicknesses of 0.0002 to 0.0005 meters.
- 14. Areas with ice thicknesses of 0.0001 to 0.0002 meters.
- 15. Areas with ice thicknesses of 0.00005 to 0.0001 meters.
- 16. Areas with ice thicknesses of 0.00002 to 0.00005 meters.
- 17. Areas with ice thicknesses of 0.00001 to 0.00002 meters.
- 18. Areas with ice thicknesses of 0.000005 to 0.00001 meters.
- 19. Areas with ice thicknesses of 0.000002 to 0.000005 meters.
- 20. Areas with ice thicknesses of 0.000001 to 0.000002 meters.

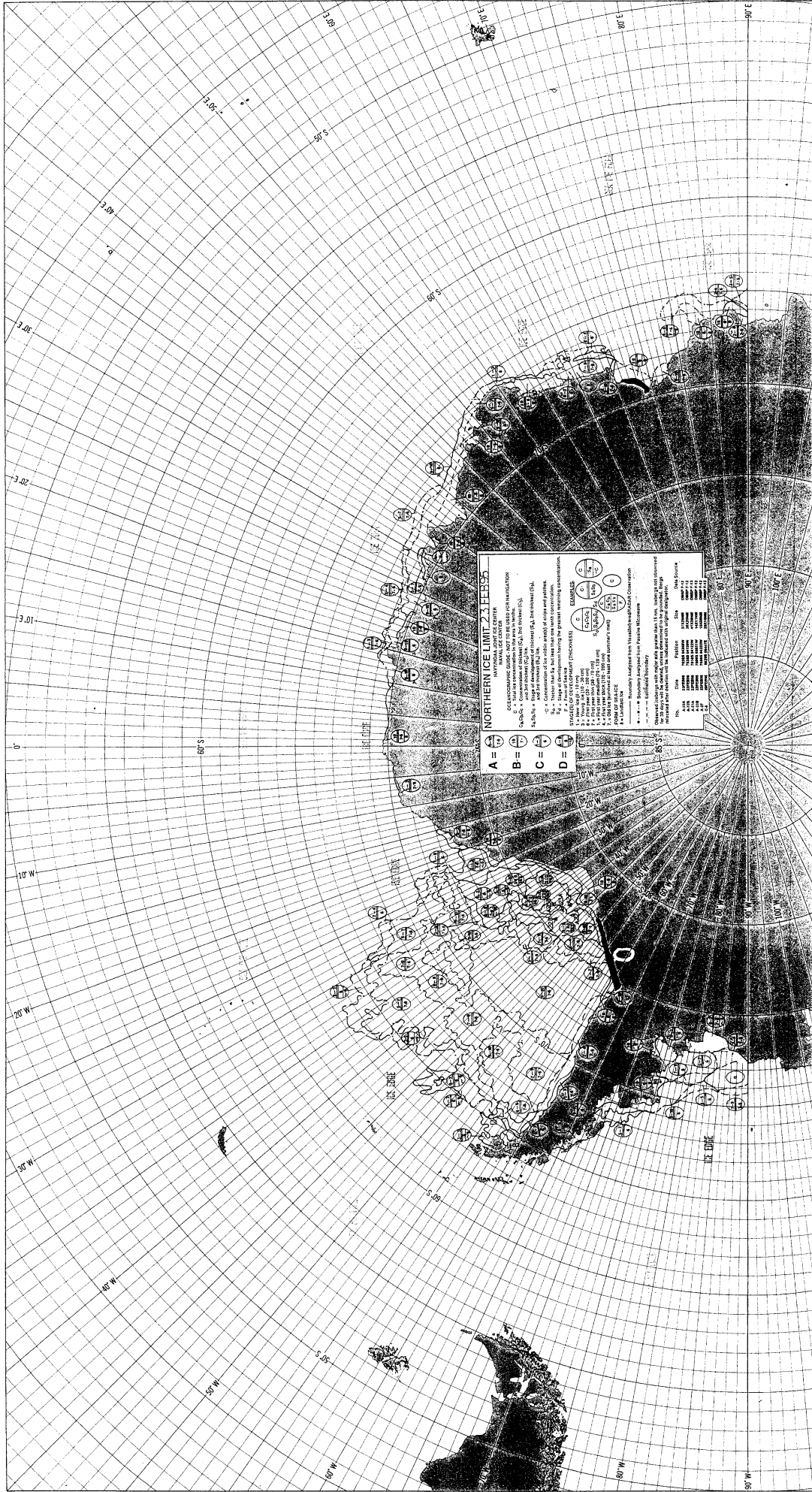
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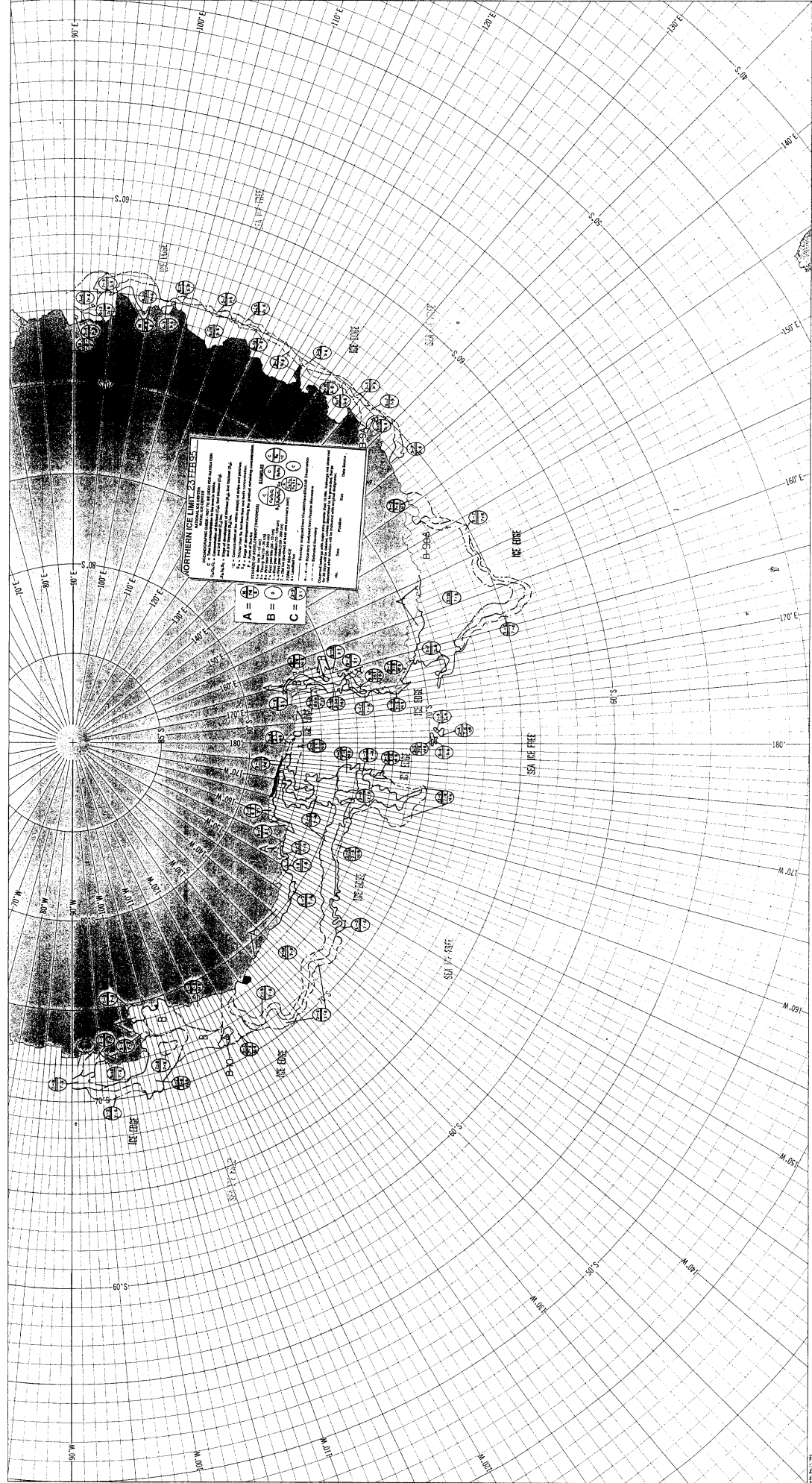






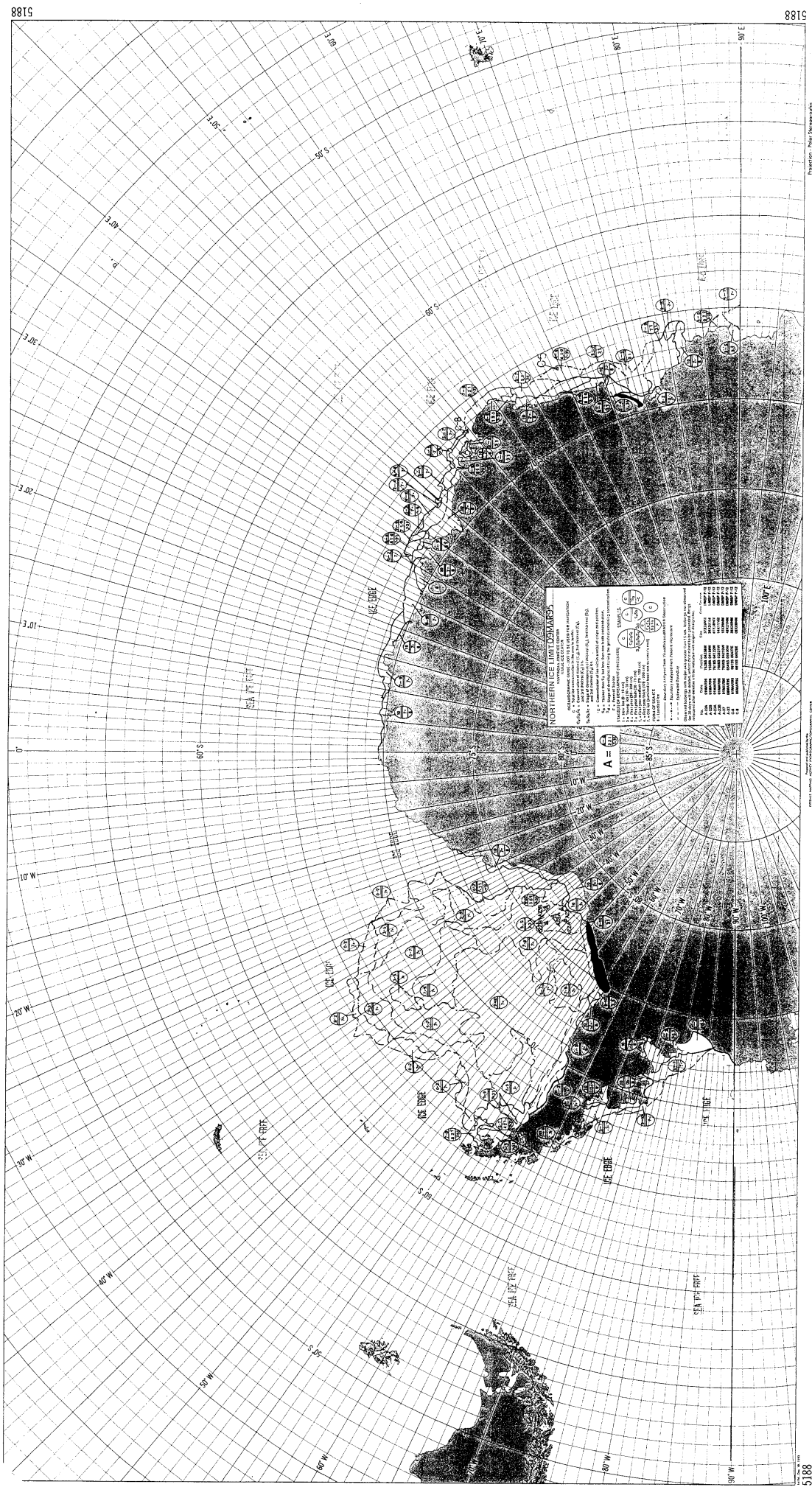








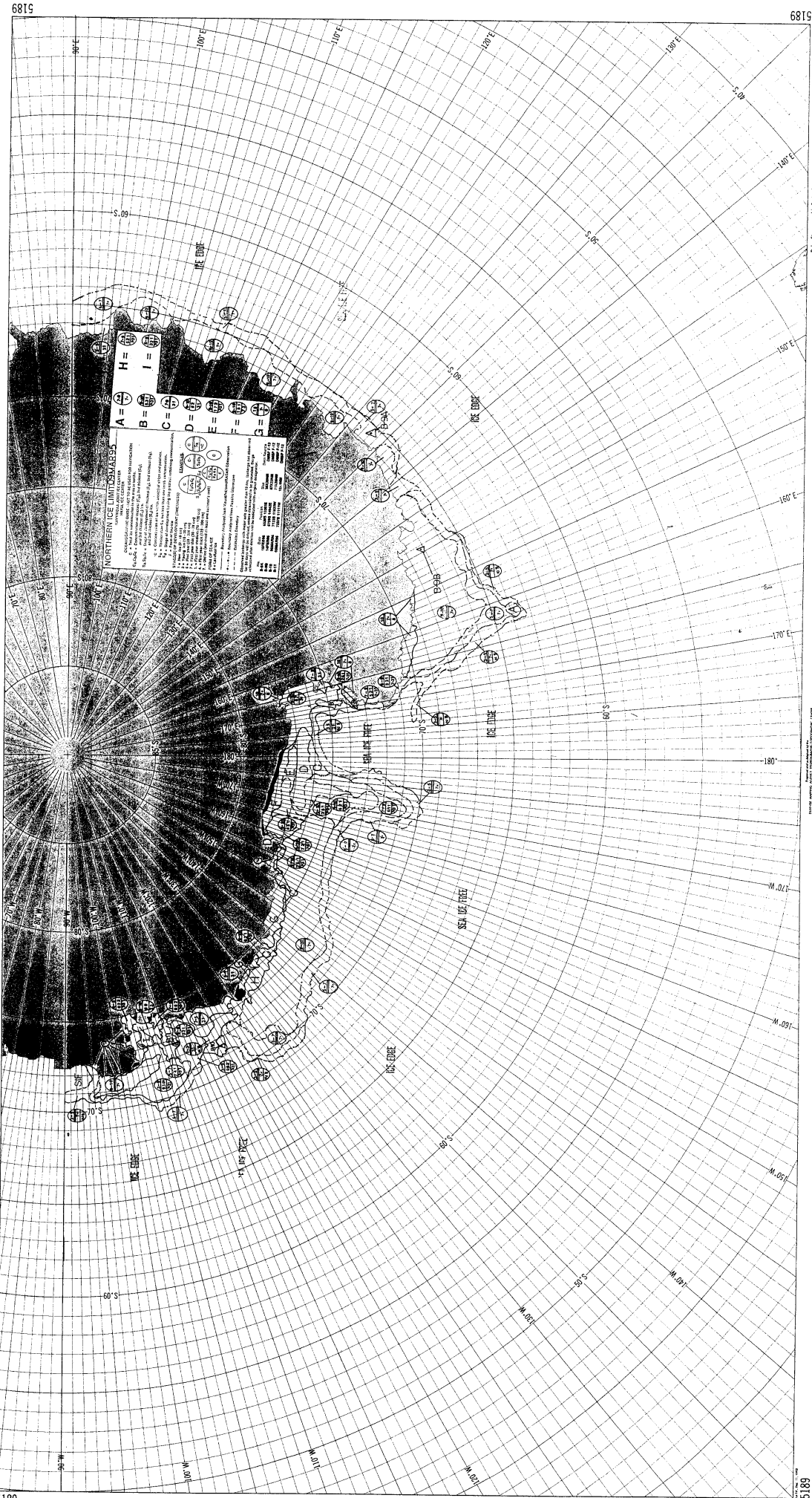




NORTH ATLANTIC OCEAN
Magnetic Variation
Magnetic Variation is the angle between true north and magnetic north. It is expressed in degrees and minutes, and is indicated by a circle with a dot in the center. The variation is positive if the magnetic north is east of true north, and negative if it is west. The variation is indicated by a circle with a dot in the center, and the number of degrees and minutes is written inside the circle. The variation is indicated by a circle with a dot in the center, and the number of degrees and minutes is written inside the circle.

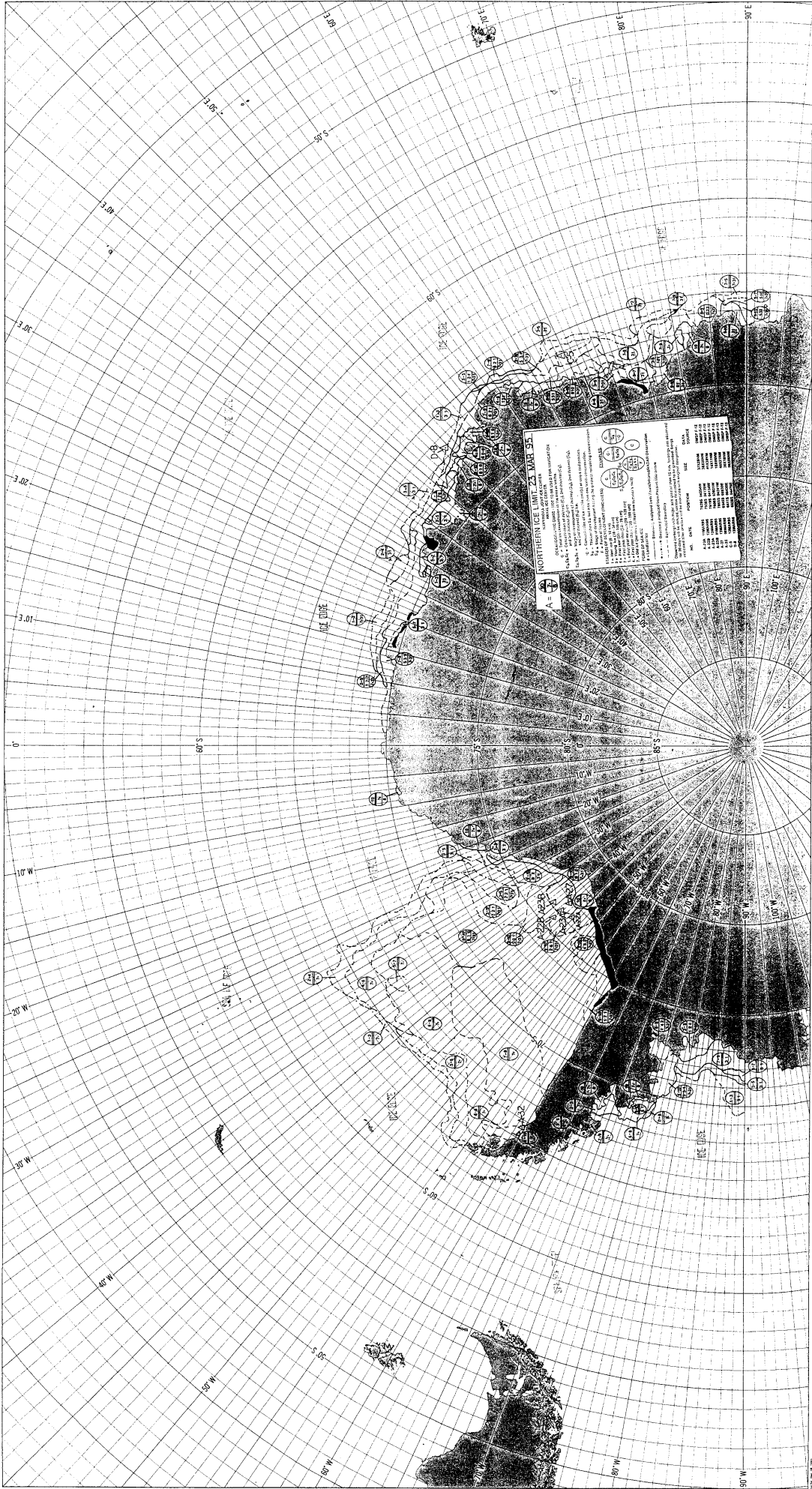
EXAMPLES
1. Variation 10° E. (Circle with a dot in the center, and 10° E. written inside.)
2. Variation 10° W. (Circle with a dot in the center, and 10° W. written inside.)
3. Variation 10° E. (Circle with a dot in the center, and 10° E. written inside.)
4. Variation 10° W. (Circle with a dot in the center, and 10° W. written inside.)

NOTE
The variation is indicated by a circle with a dot in the center, and the number of degrees and minutes is written inside the circle. The variation is indicated by a circle with a dot in the center, and the number of degrees and minutes is written inside the circle.



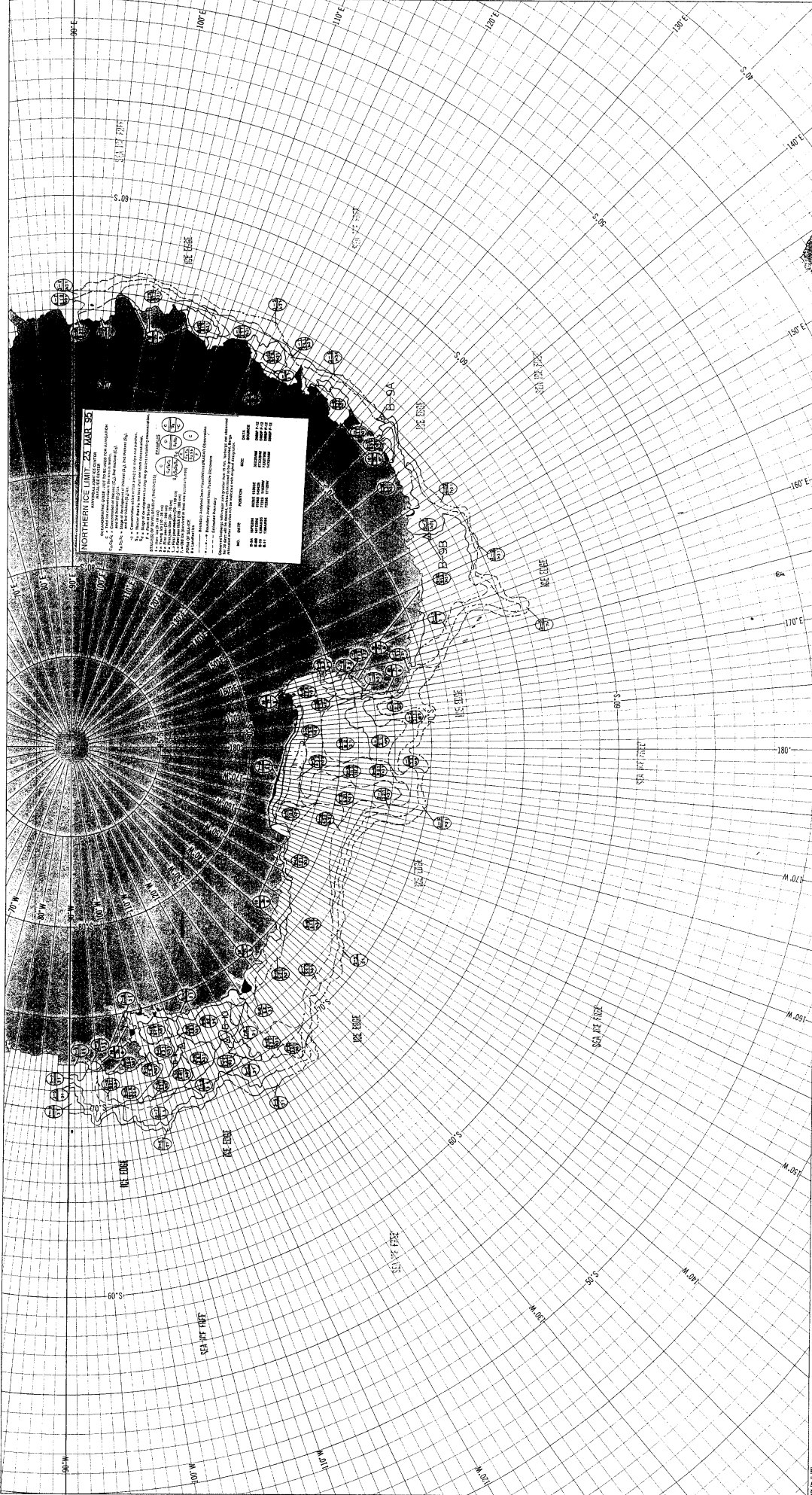






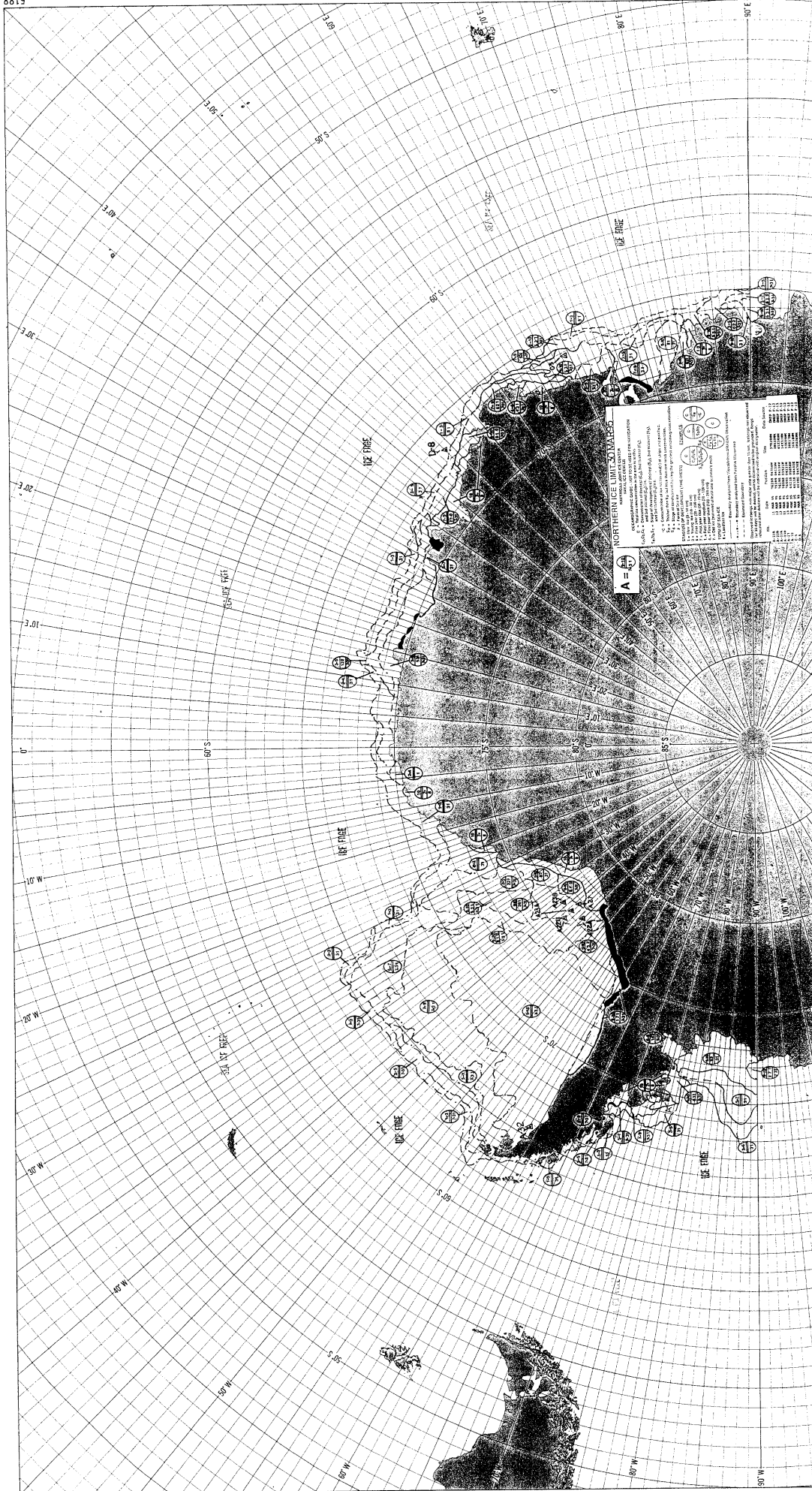
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Source: U.S. Navy Hydrographic Office
Data: U.S. Navy Hydrographic Office
Chart: 1:10,000,000



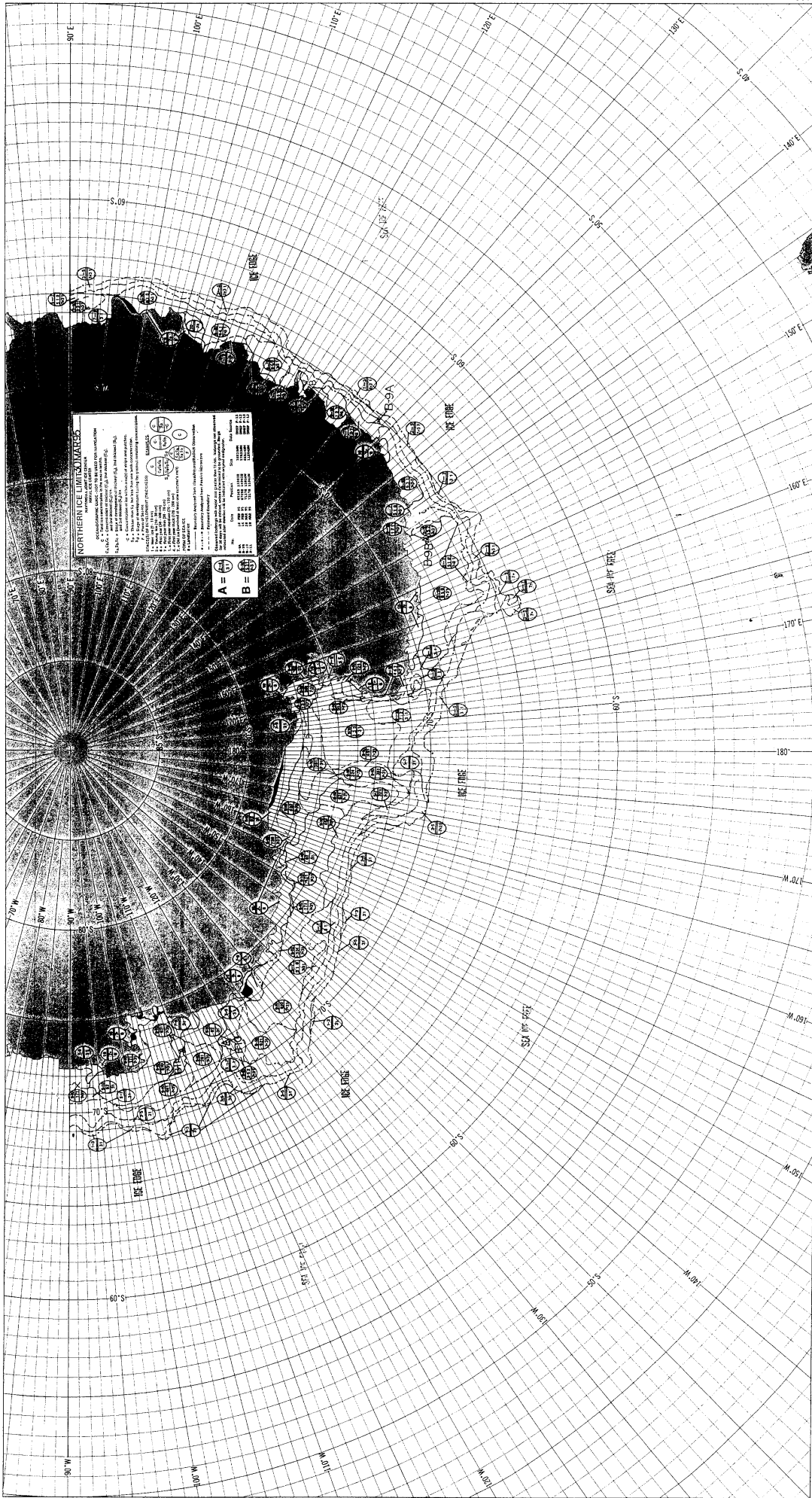
Revised 1956

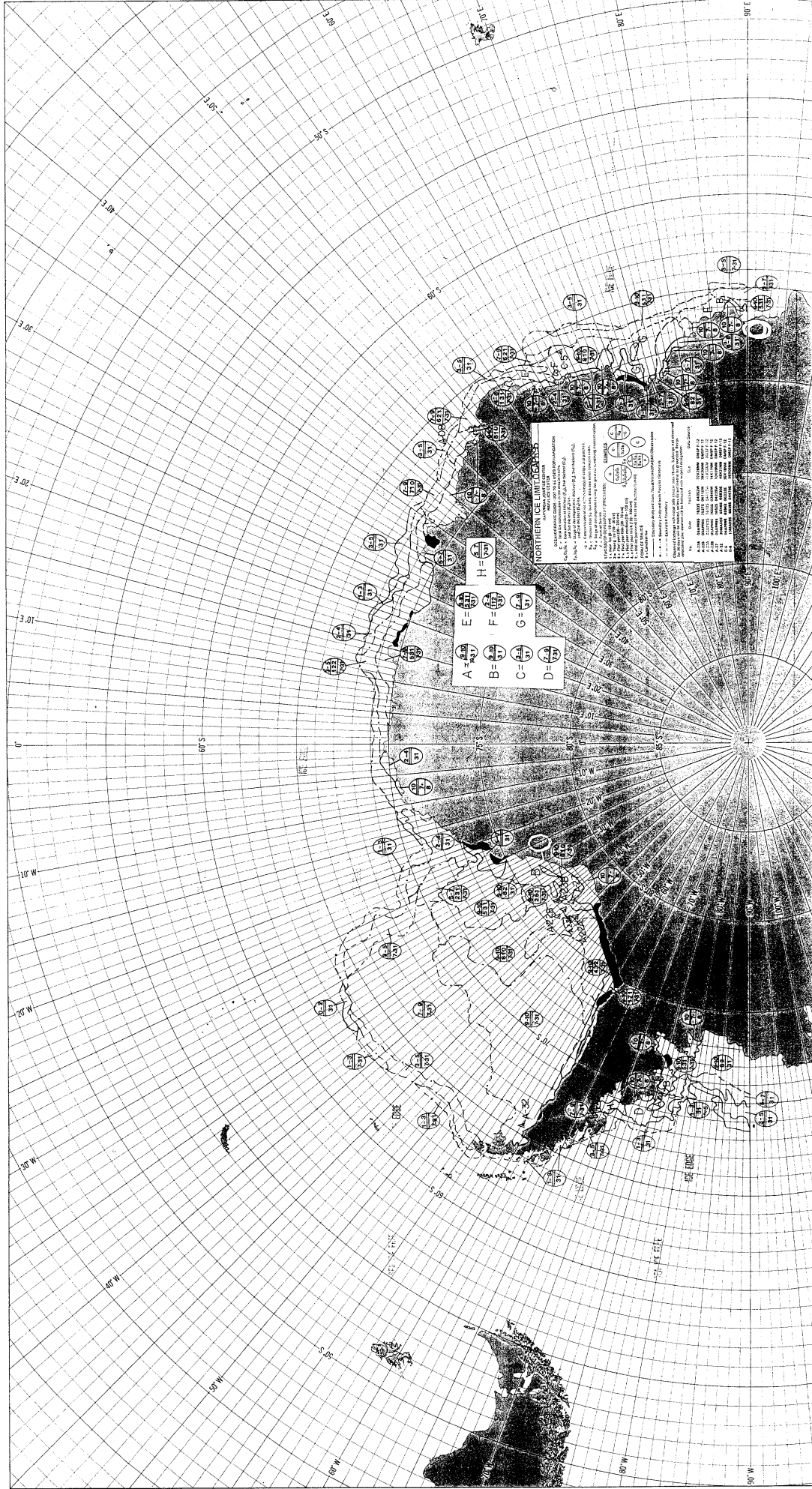
Revised 1956

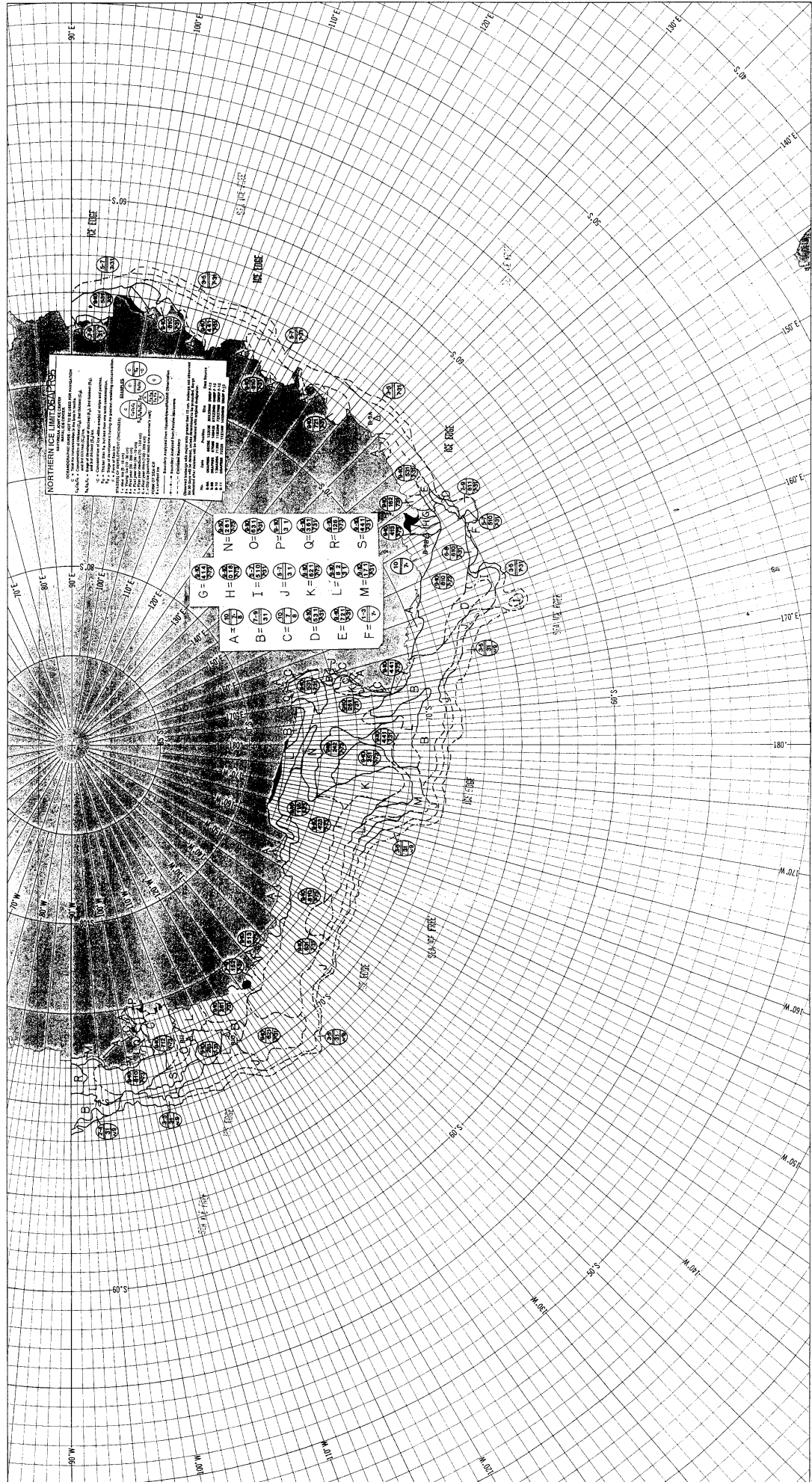


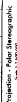
Published by the Hydrographic Office, Washington, D.C.

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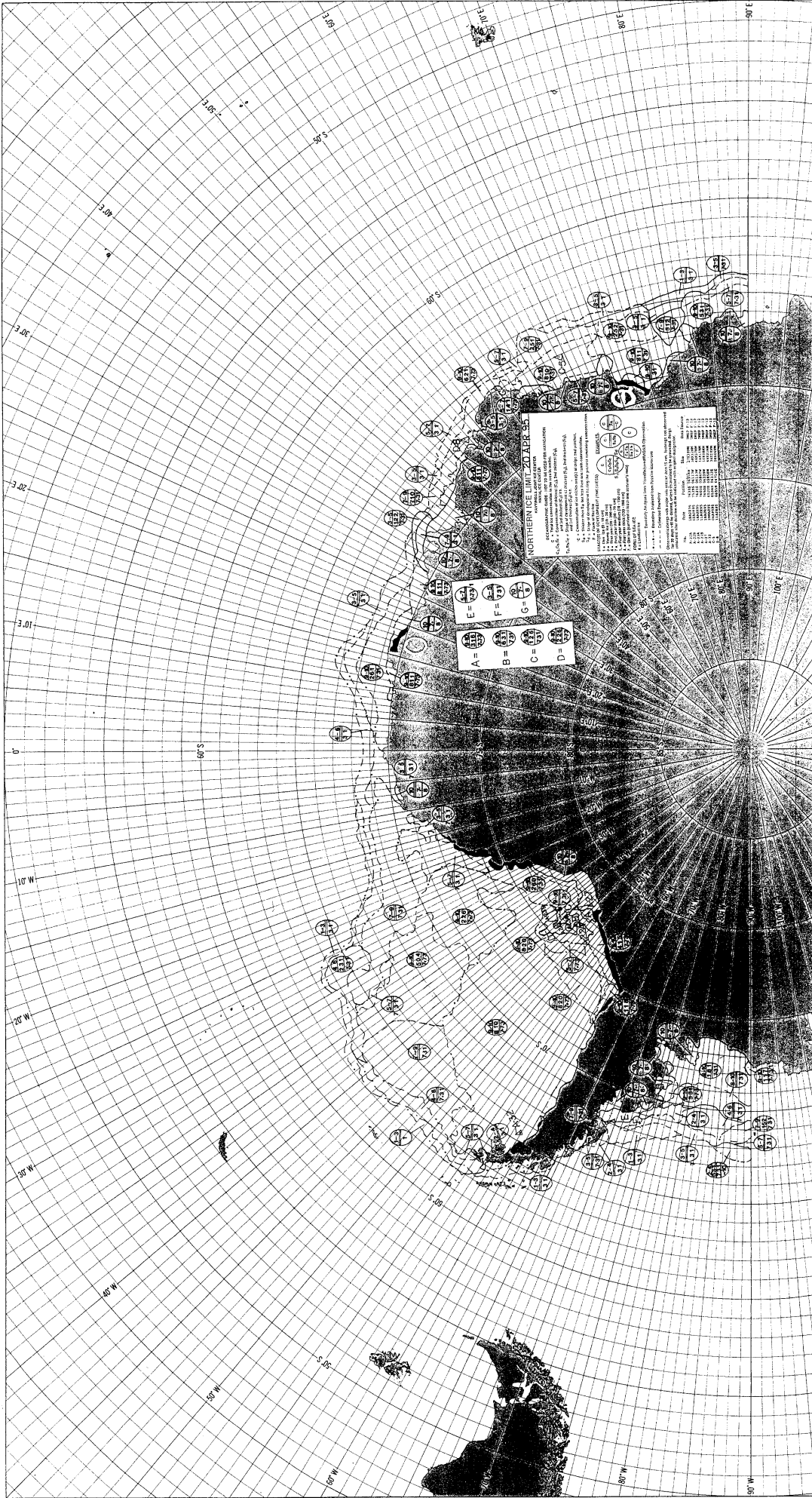




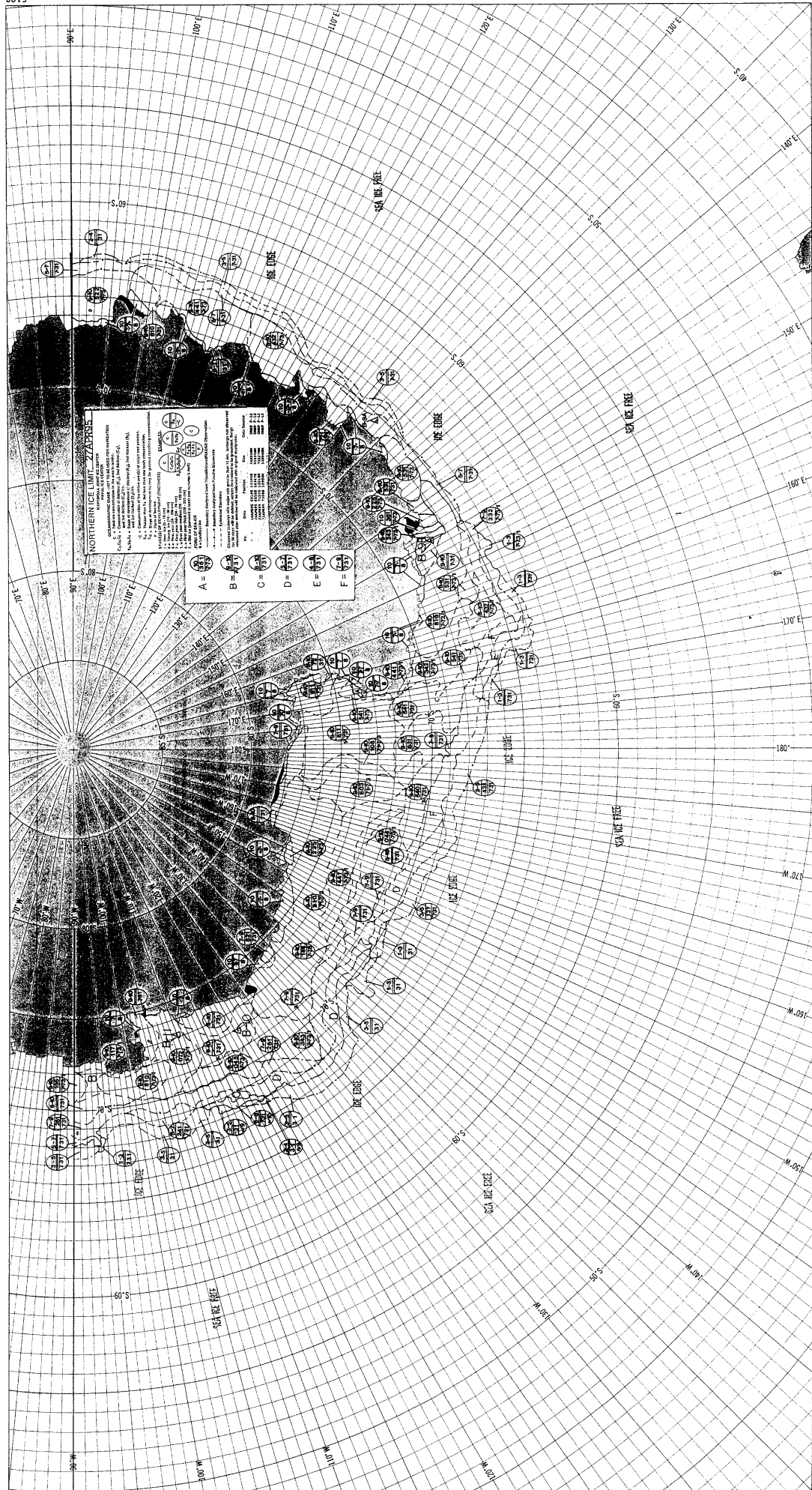


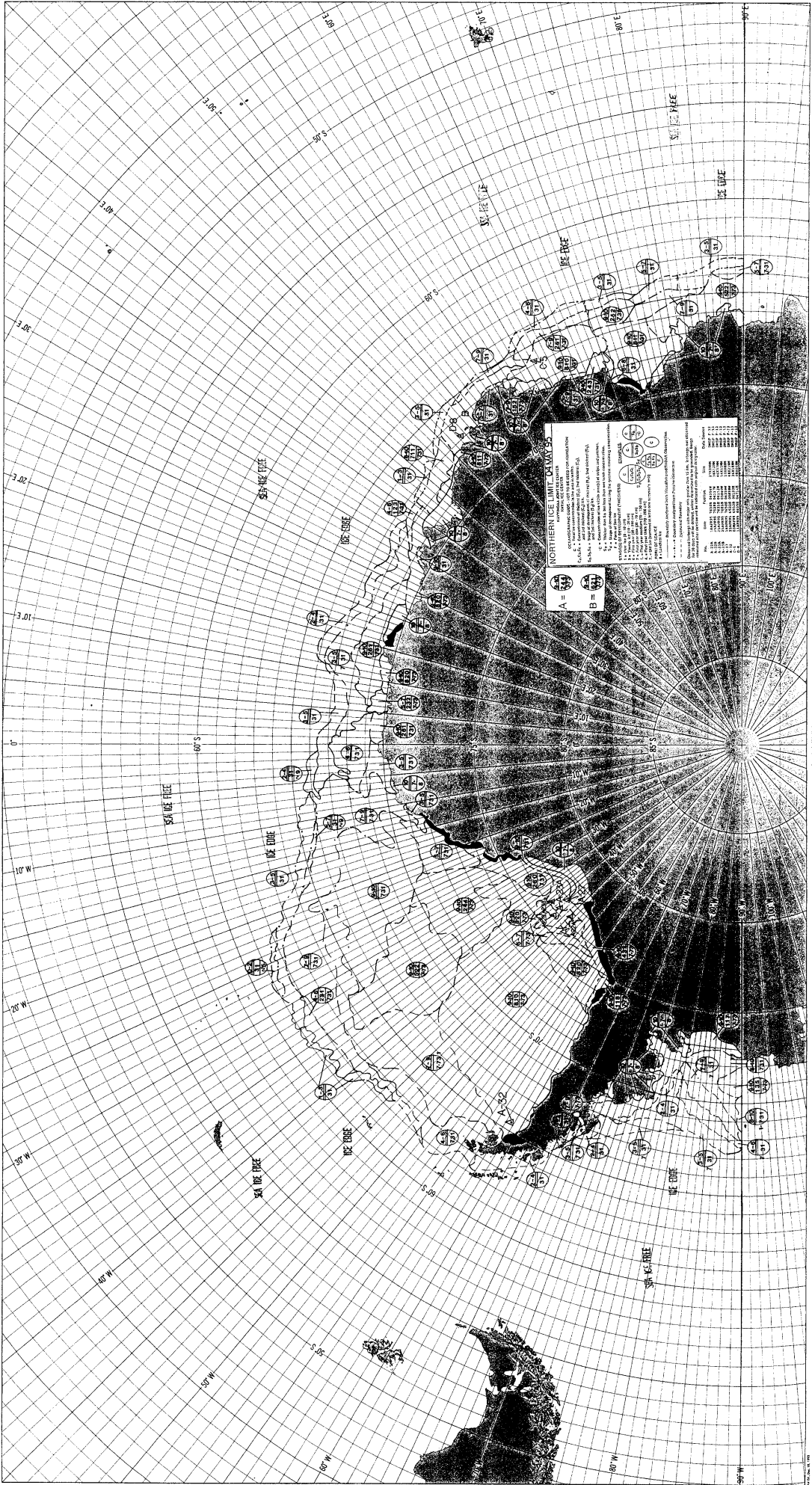








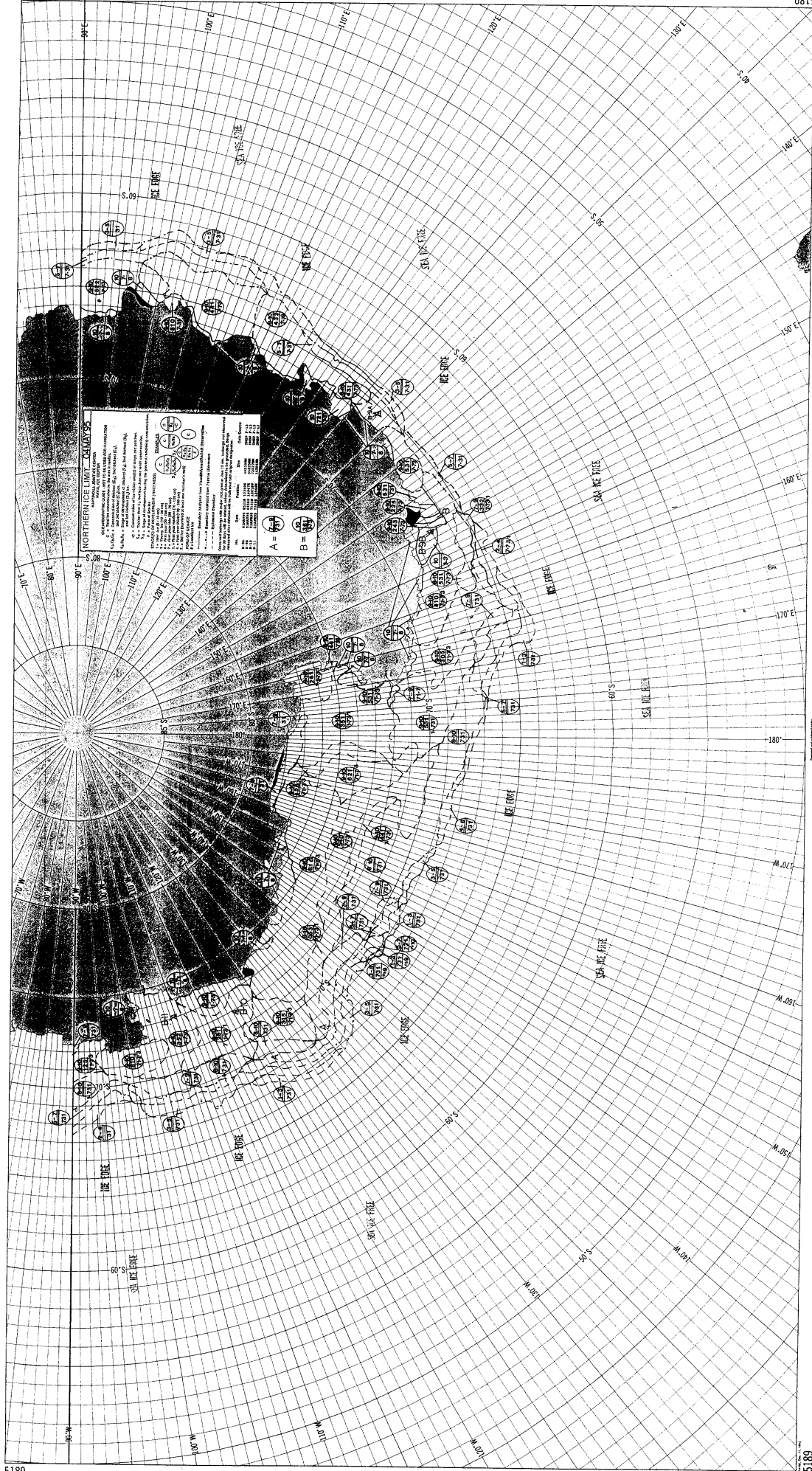


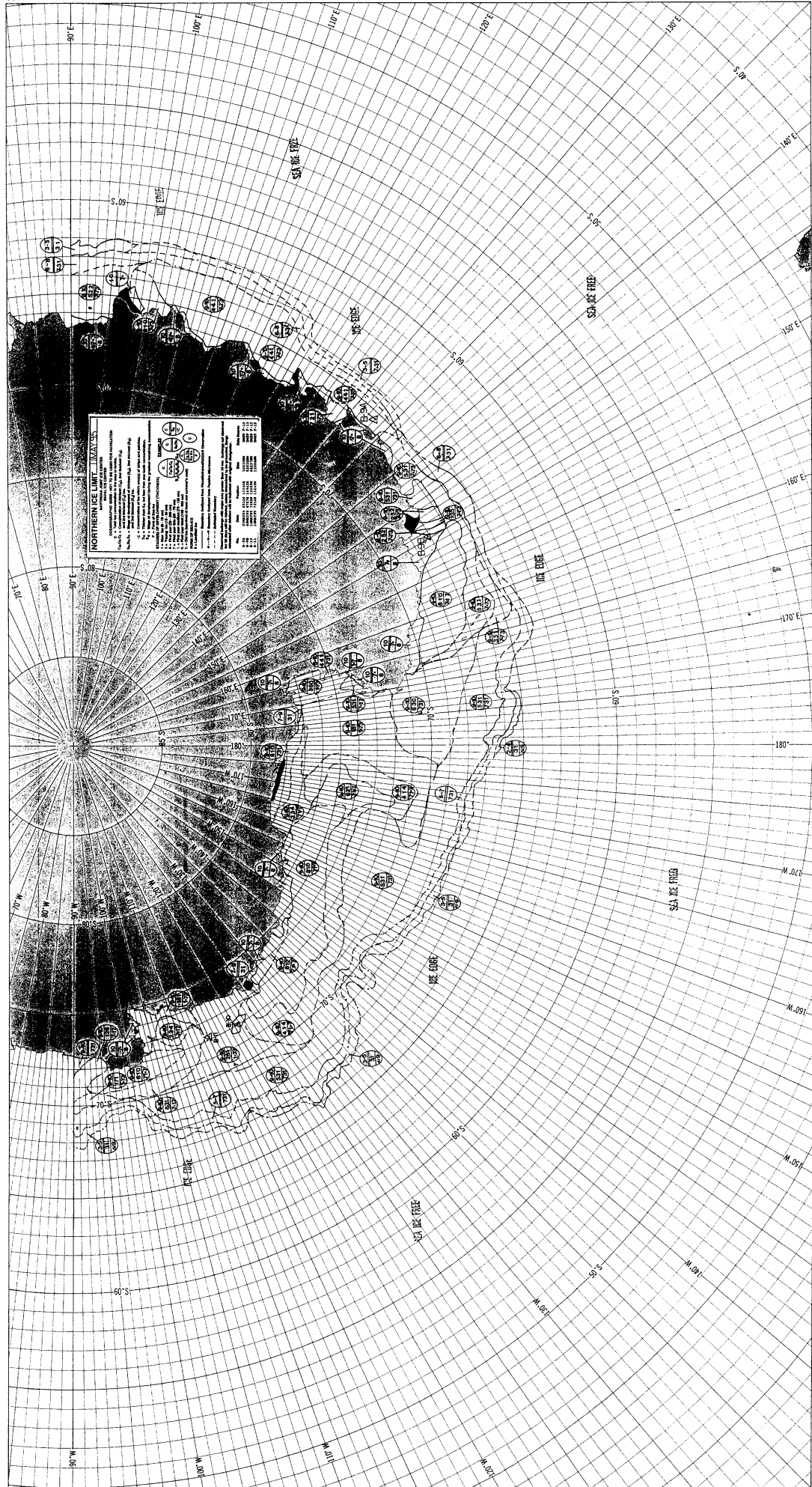


Projection - Polar Stereographic
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Source - U.S. Navy Hydrographic Office
Revised - 1955

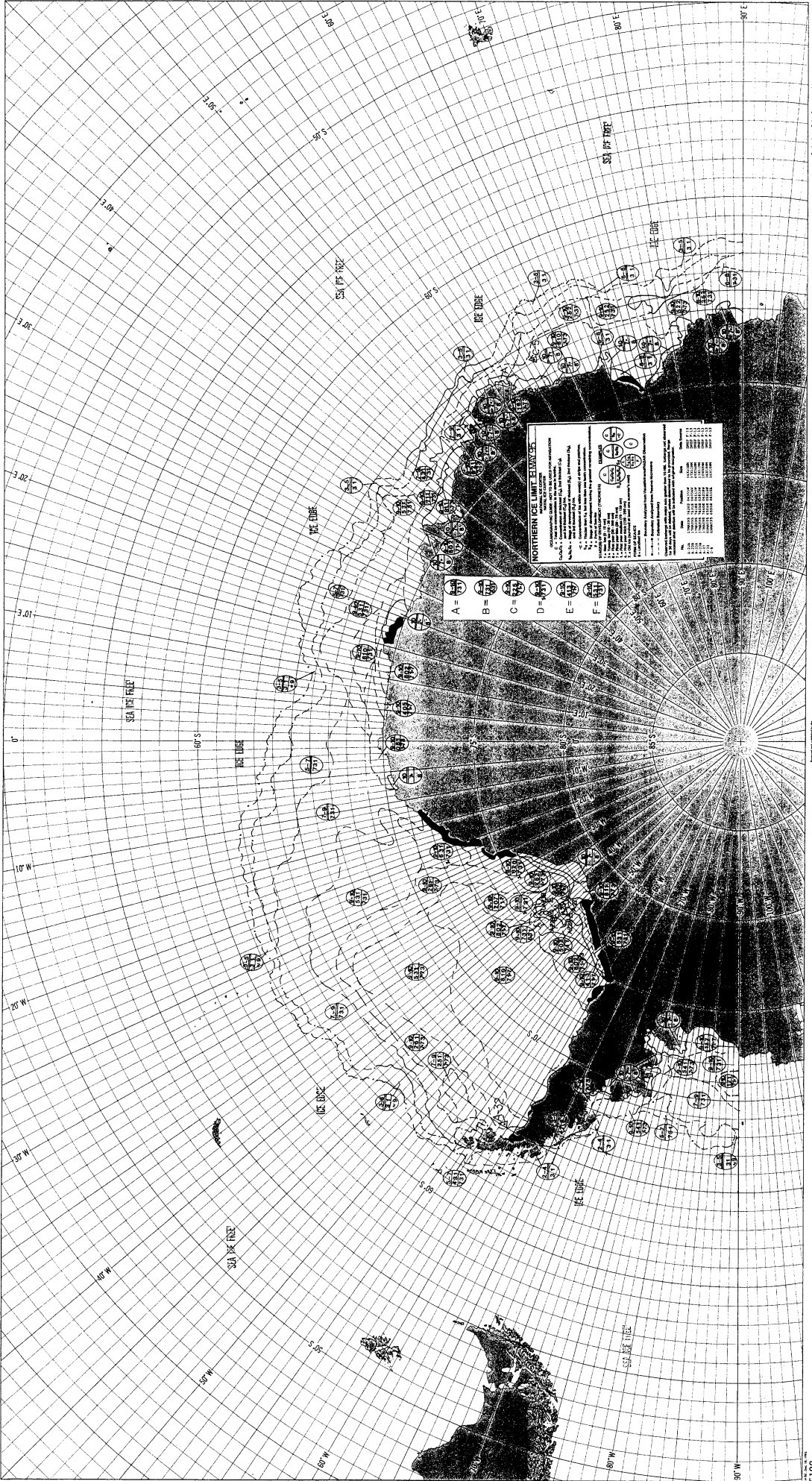


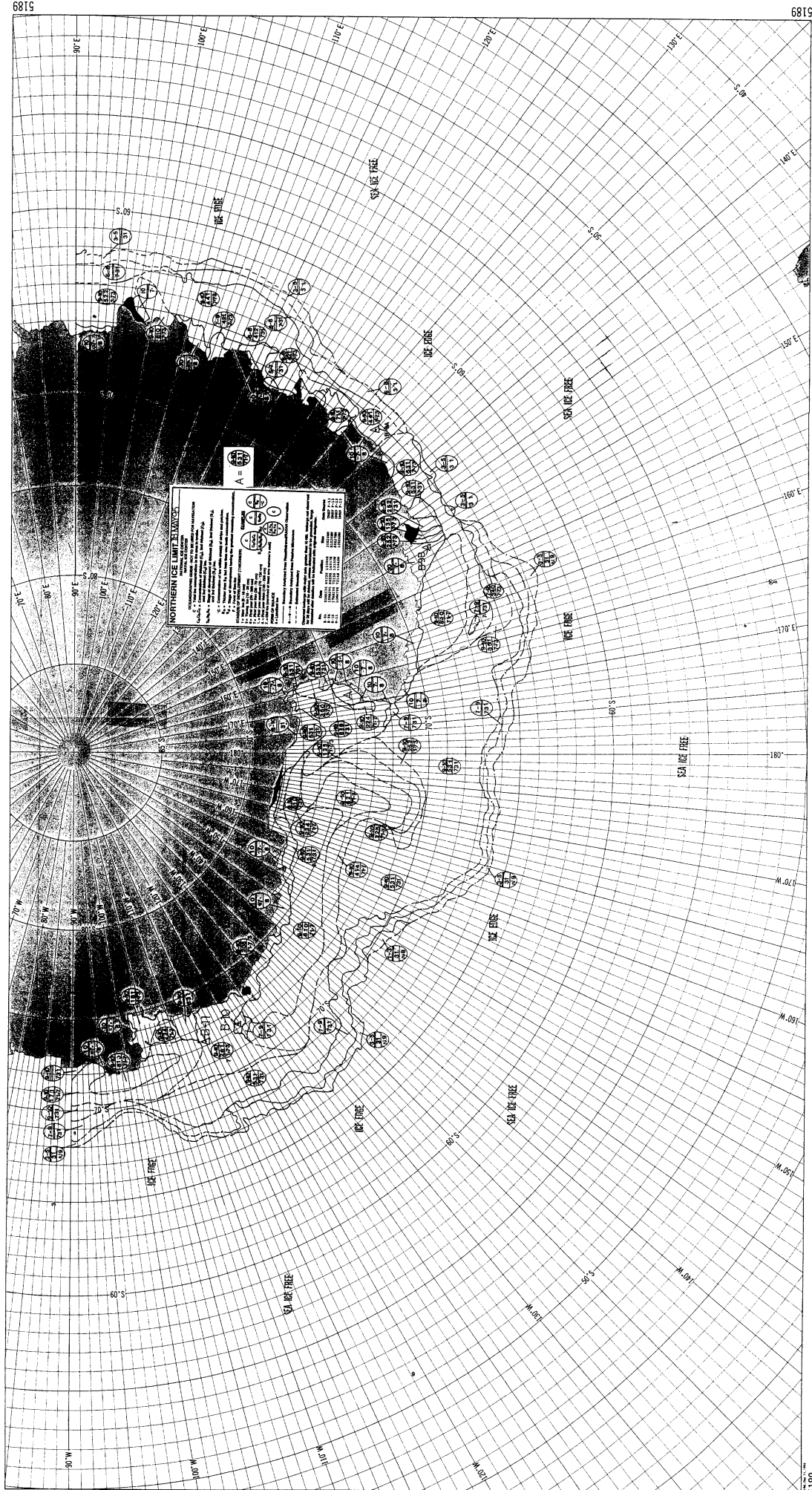




Public Domain, Copyright, 1950, U.S. Navy

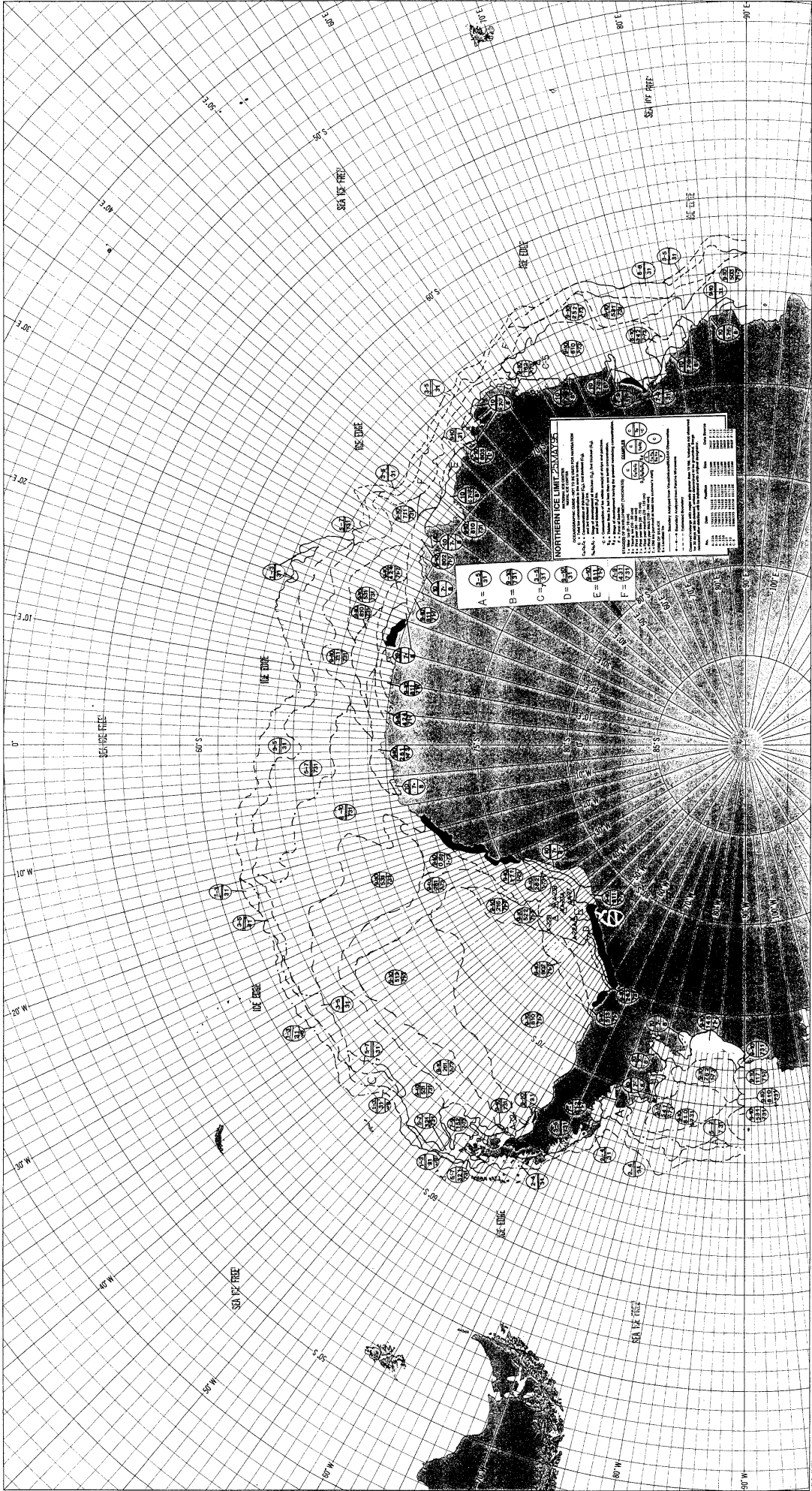
Public Domain, Copyright, 1950, U.S. Navy

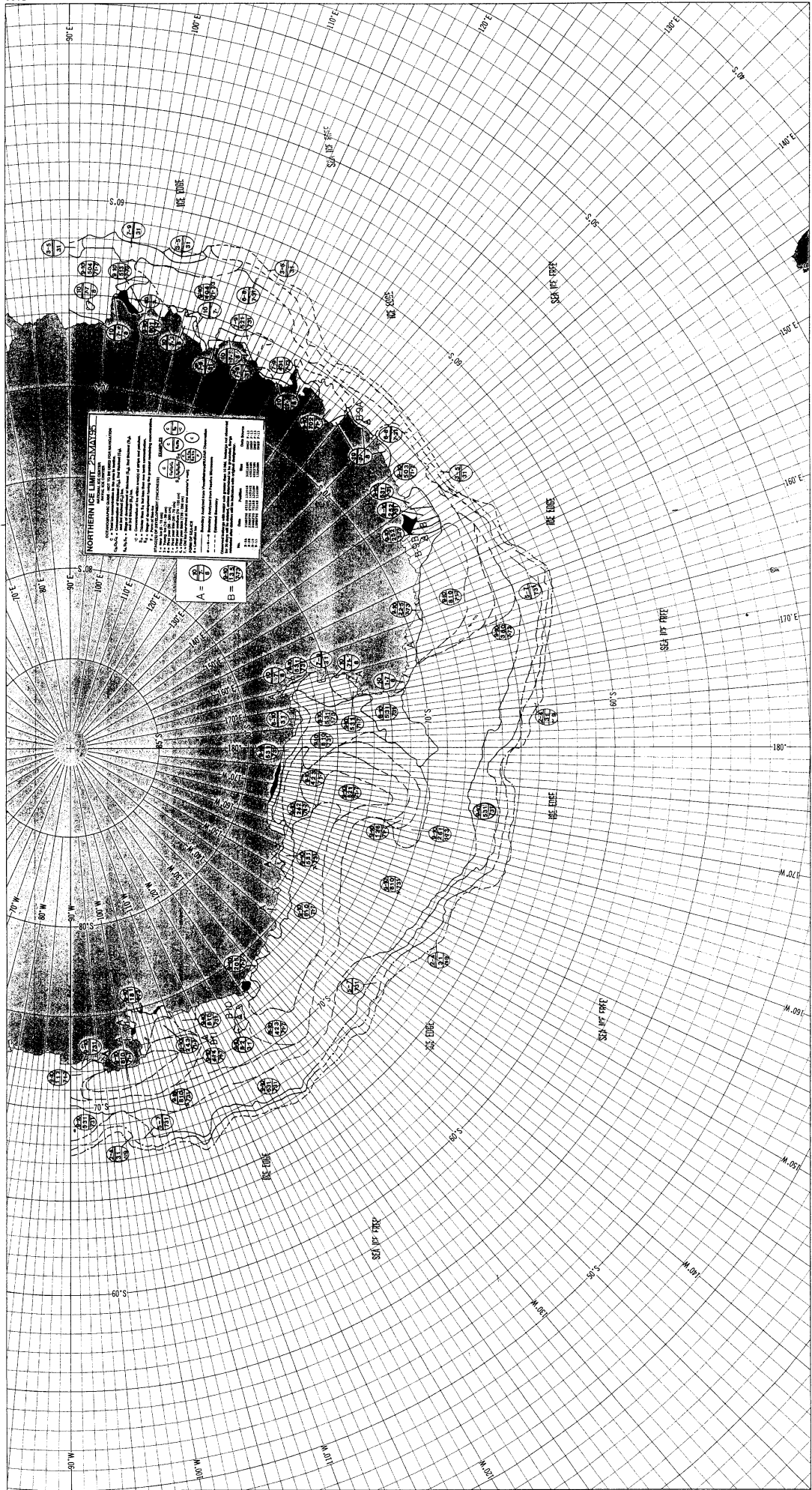


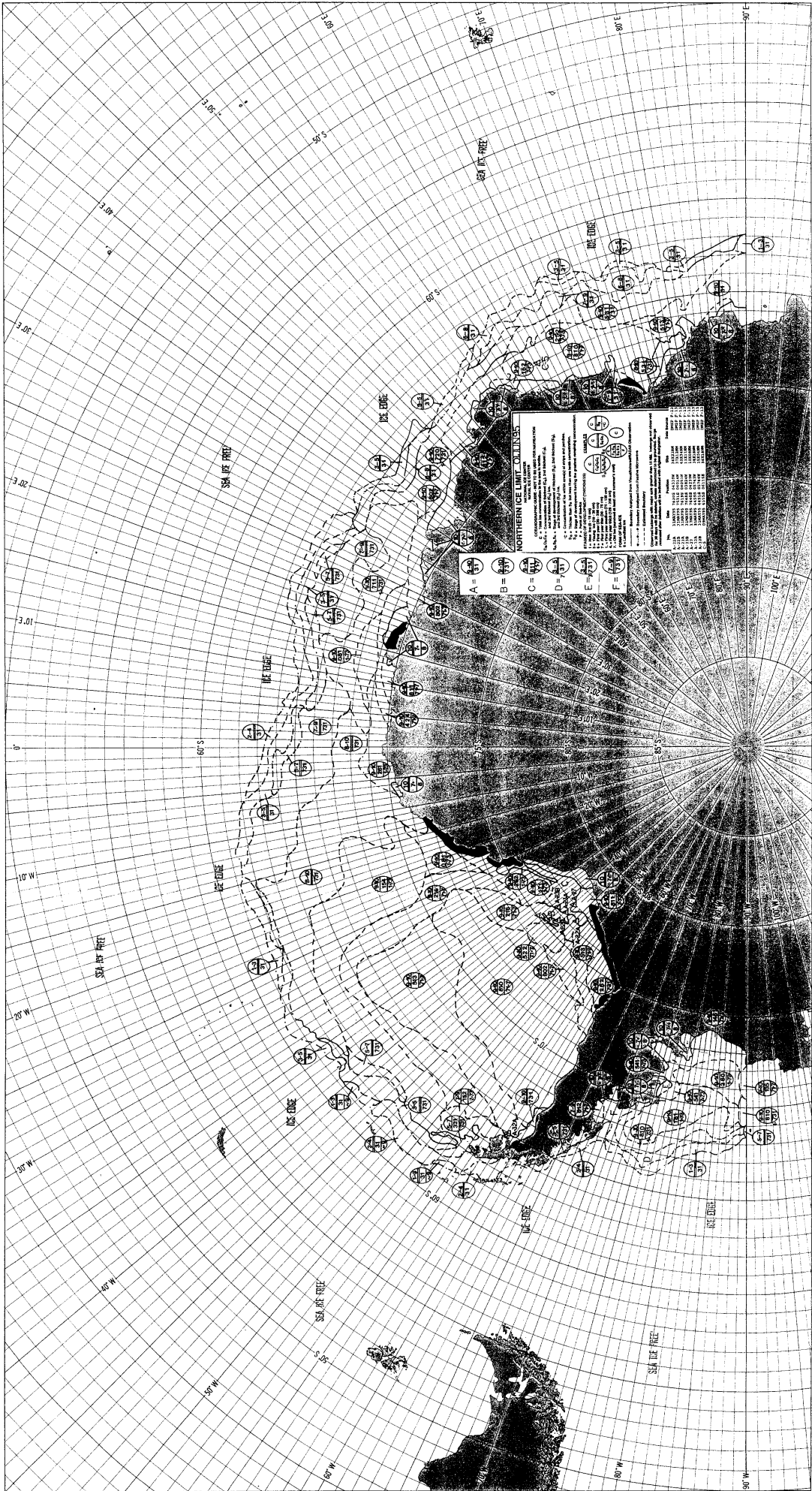


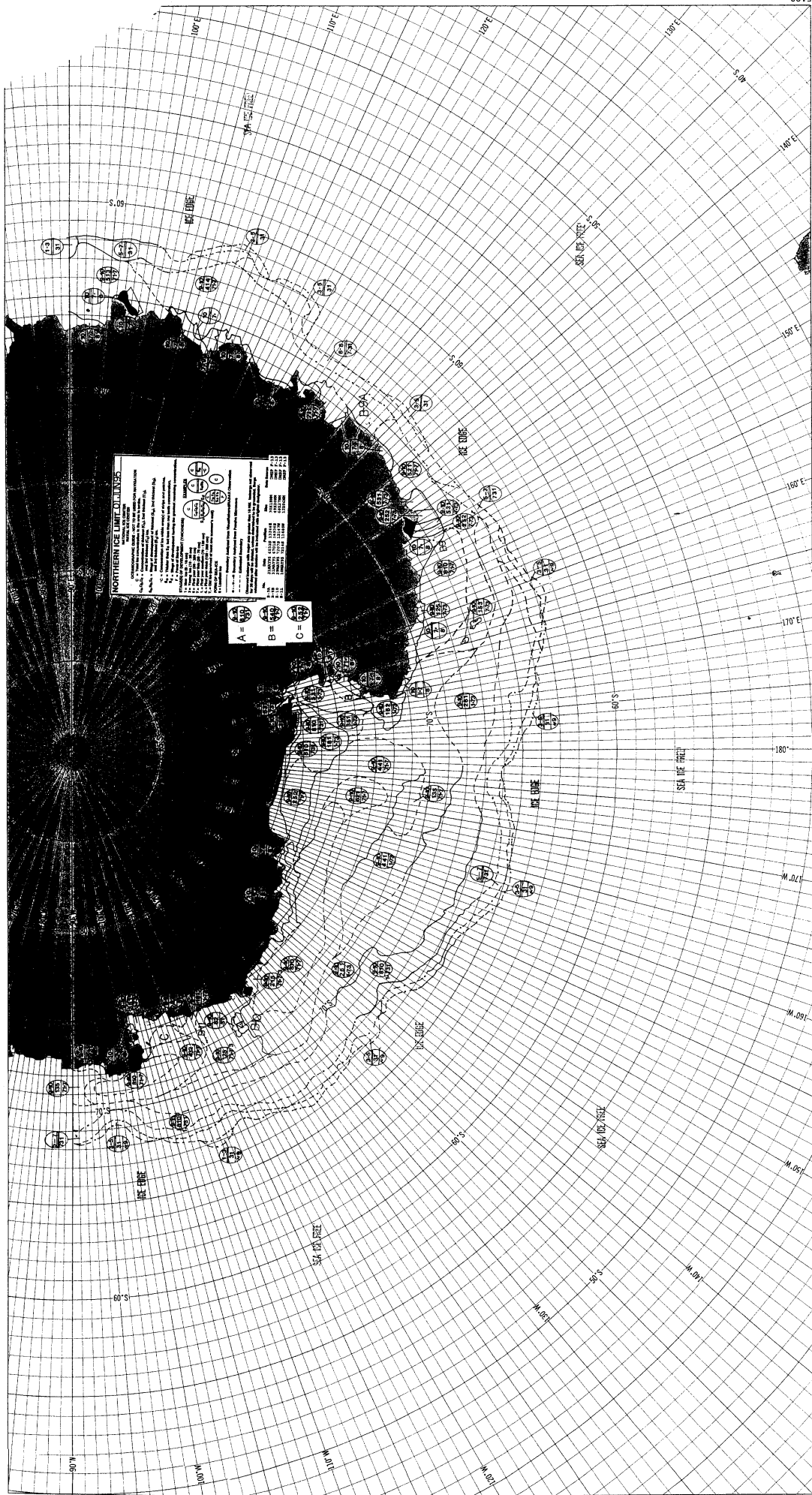
Printed by the Hydrographic Office, Washington, D.C.

Copyright 1980 by the Hydrographic Office, Washington, D.C.



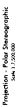


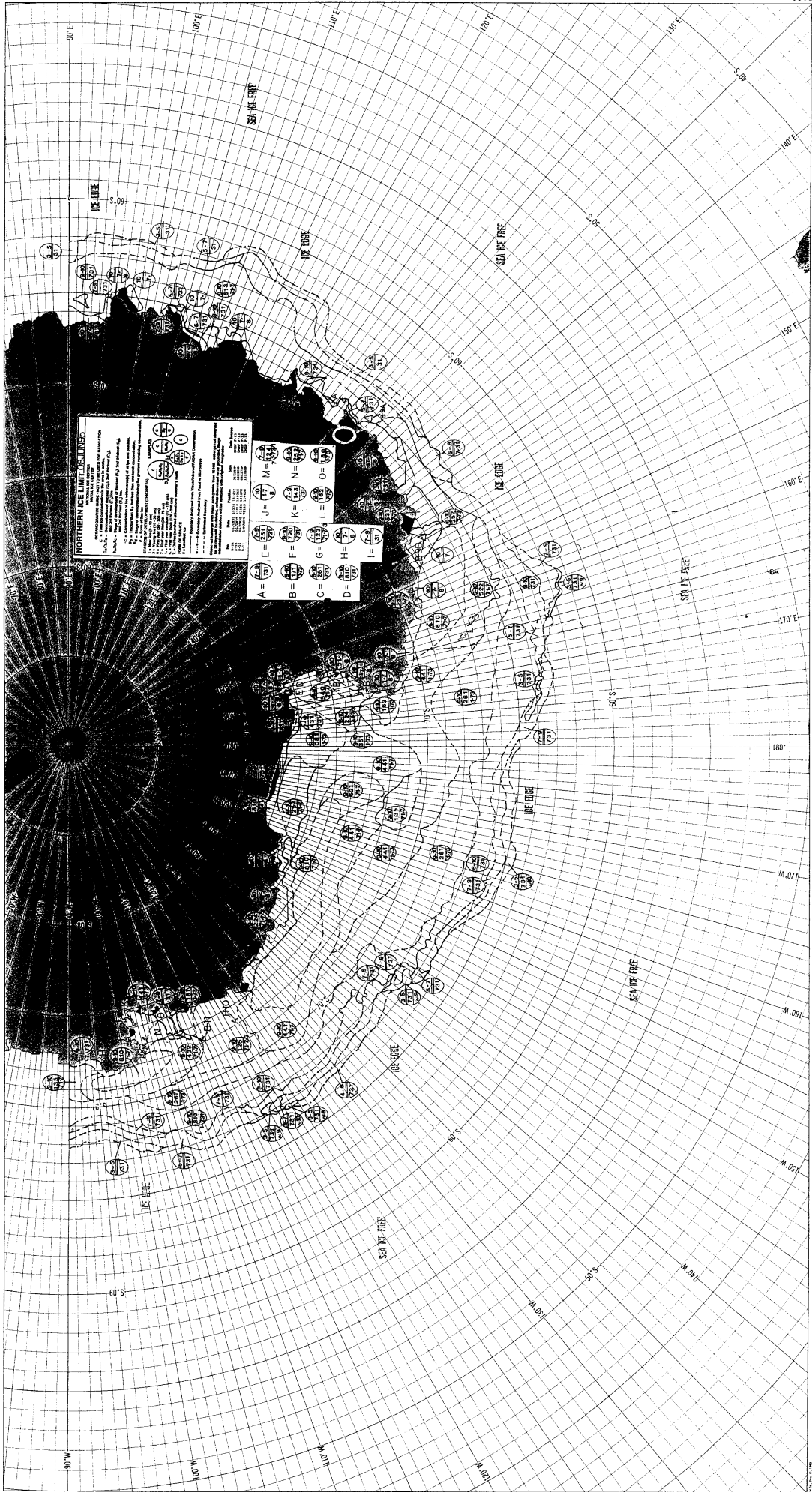




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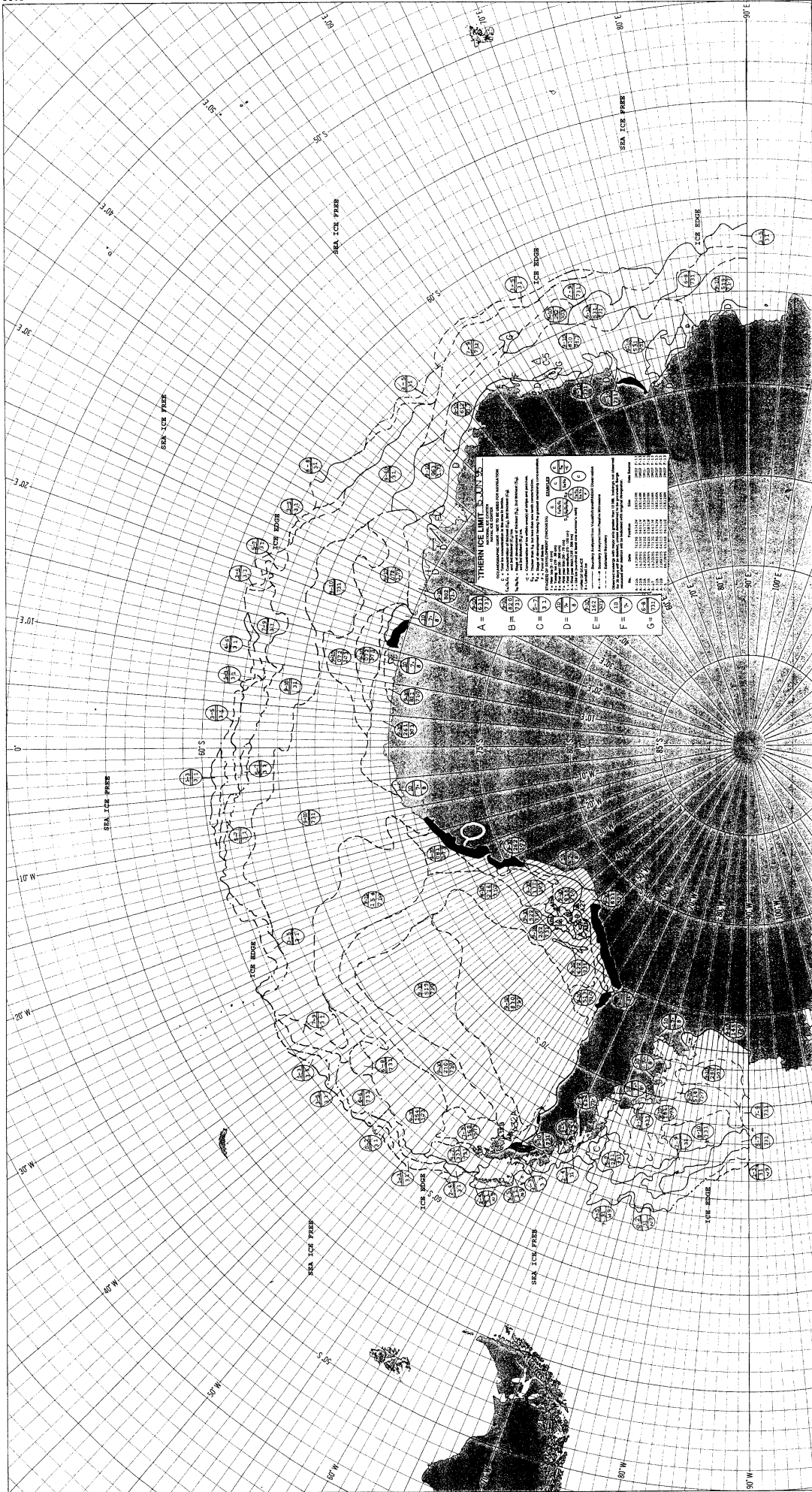
Scale of Latitudes

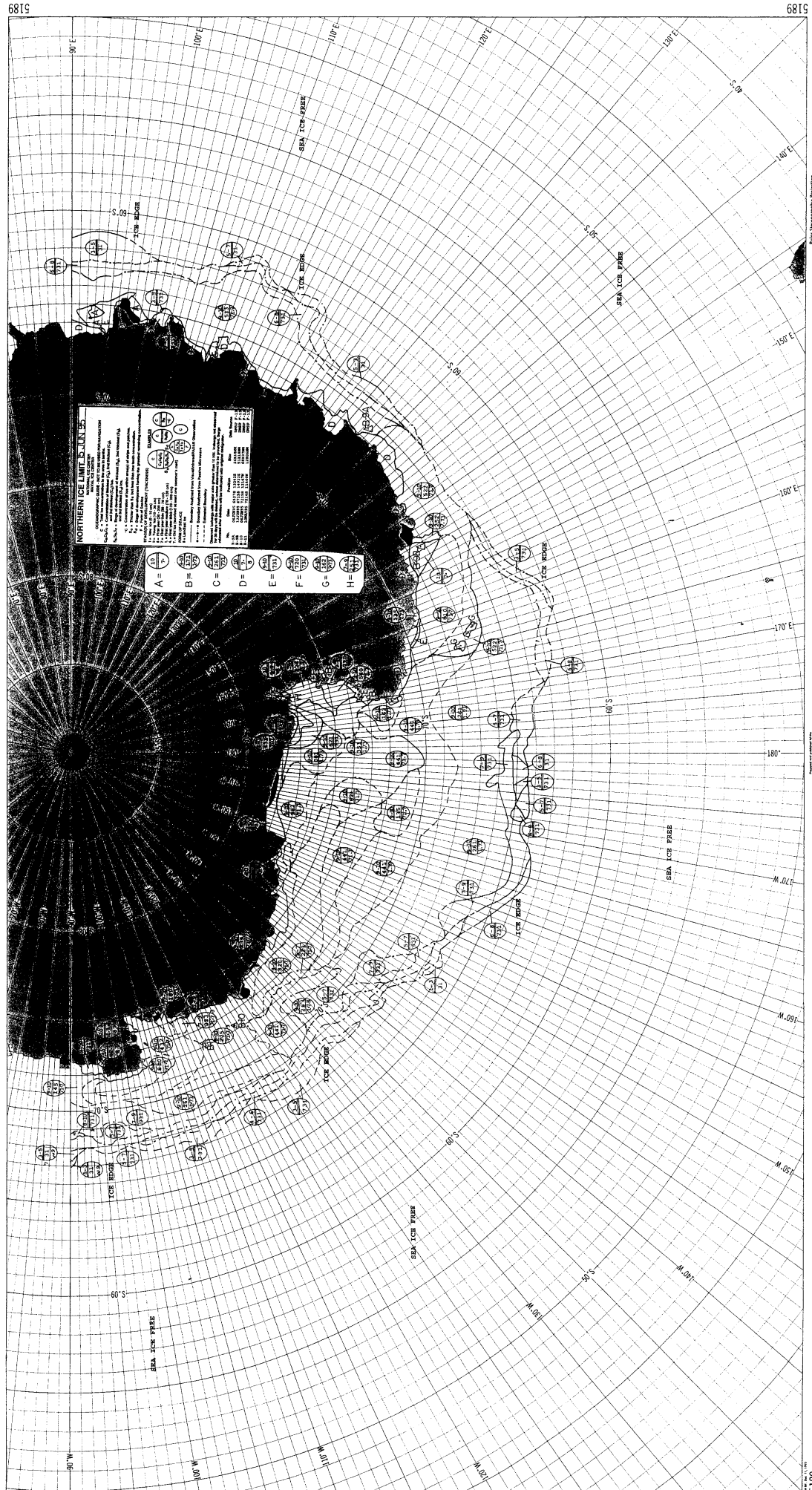


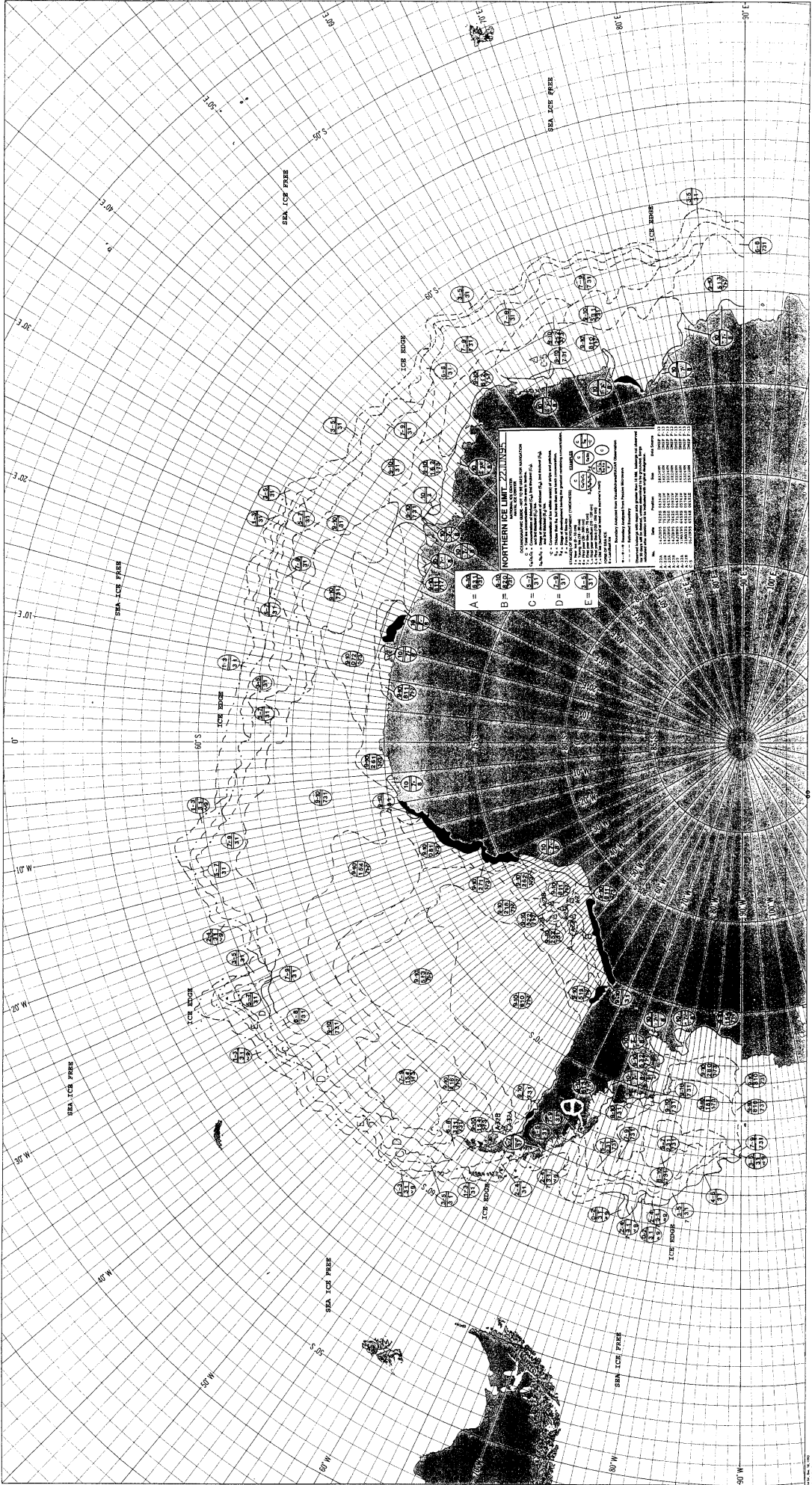


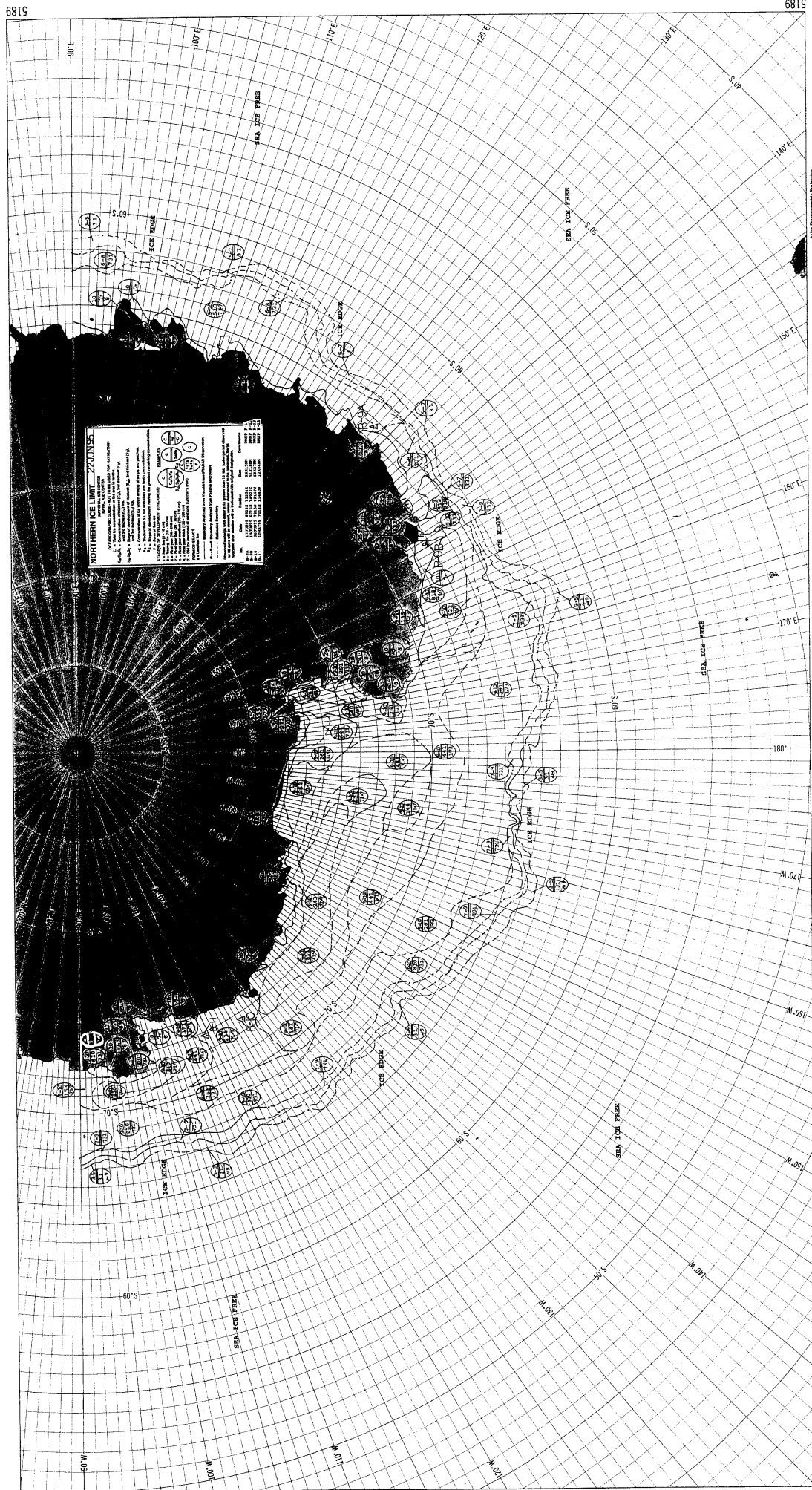
NORTHERN ICE LIMITATIONS
This chart is based on the latest available information. It is not a guarantee of accuracy. It is the user's responsibility to verify the information before using it for navigation. The chart is published by the National Oceanic and Atmospheric Administration (NOAA). The chart is available for purchase from the NOAA Store. The chart is also available for download from the NOAA website. The chart is published under the Creative Commons Attribution-NonCommercial 4.0 International License. The chart is published by the National Oceanic and Atmospheric Administration (NOAA). The chart is available for purchase from the NOAA Store. The chart is also available for download from the NOAA website. The chart is published under the Creative Commons Attribution-NonCommercial 4.0 International License.

A =	1/100	B =	1/200	C =	1/300	D =	1/400	E =	1/500	F =	1/600	G =	1/700	H =	1/800	I =	1/900	J =	1/1000	K =	1/1100	L =	1/1200	M =	1/1300	N =	1/1400	O =	1/1500
-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------



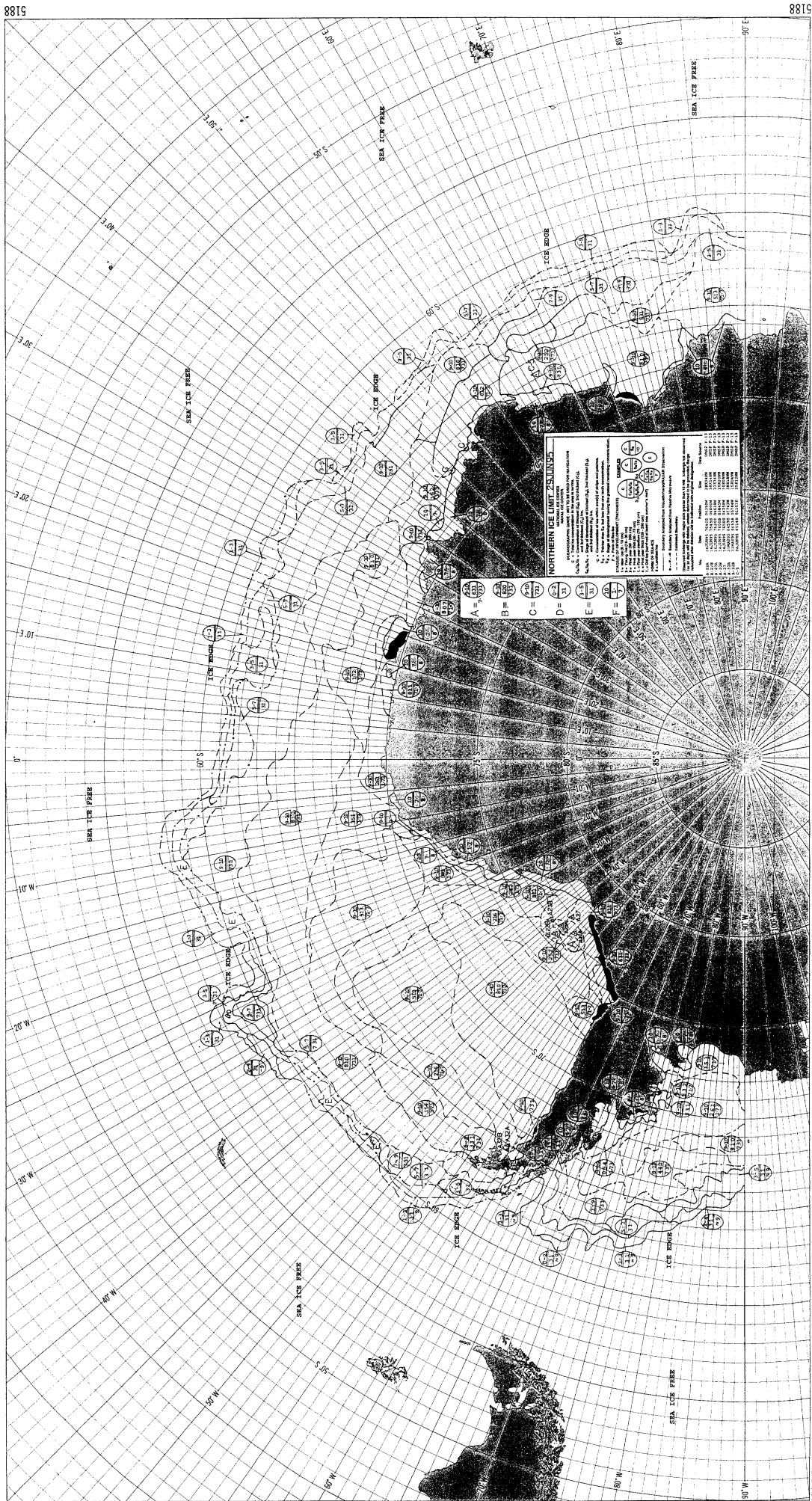






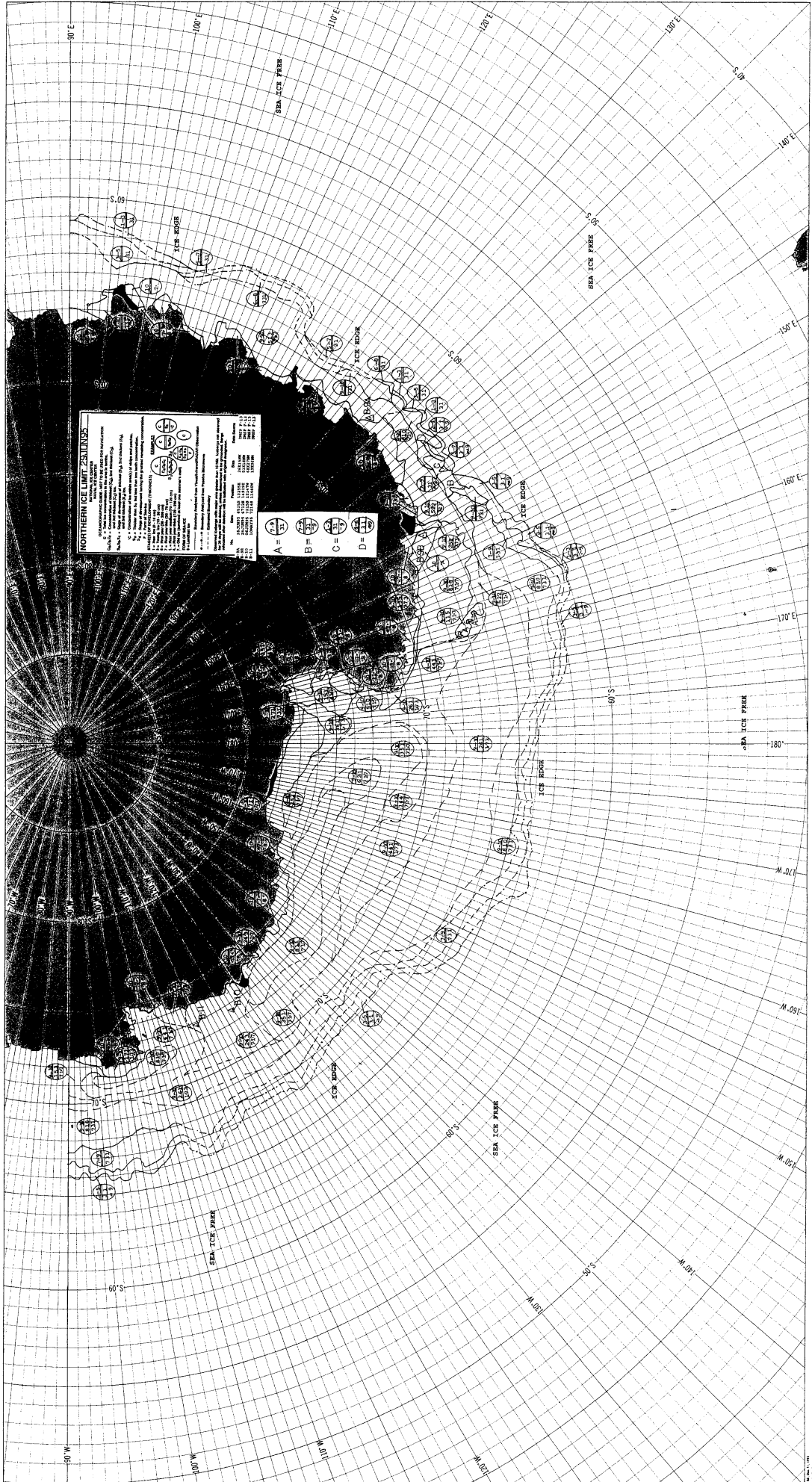
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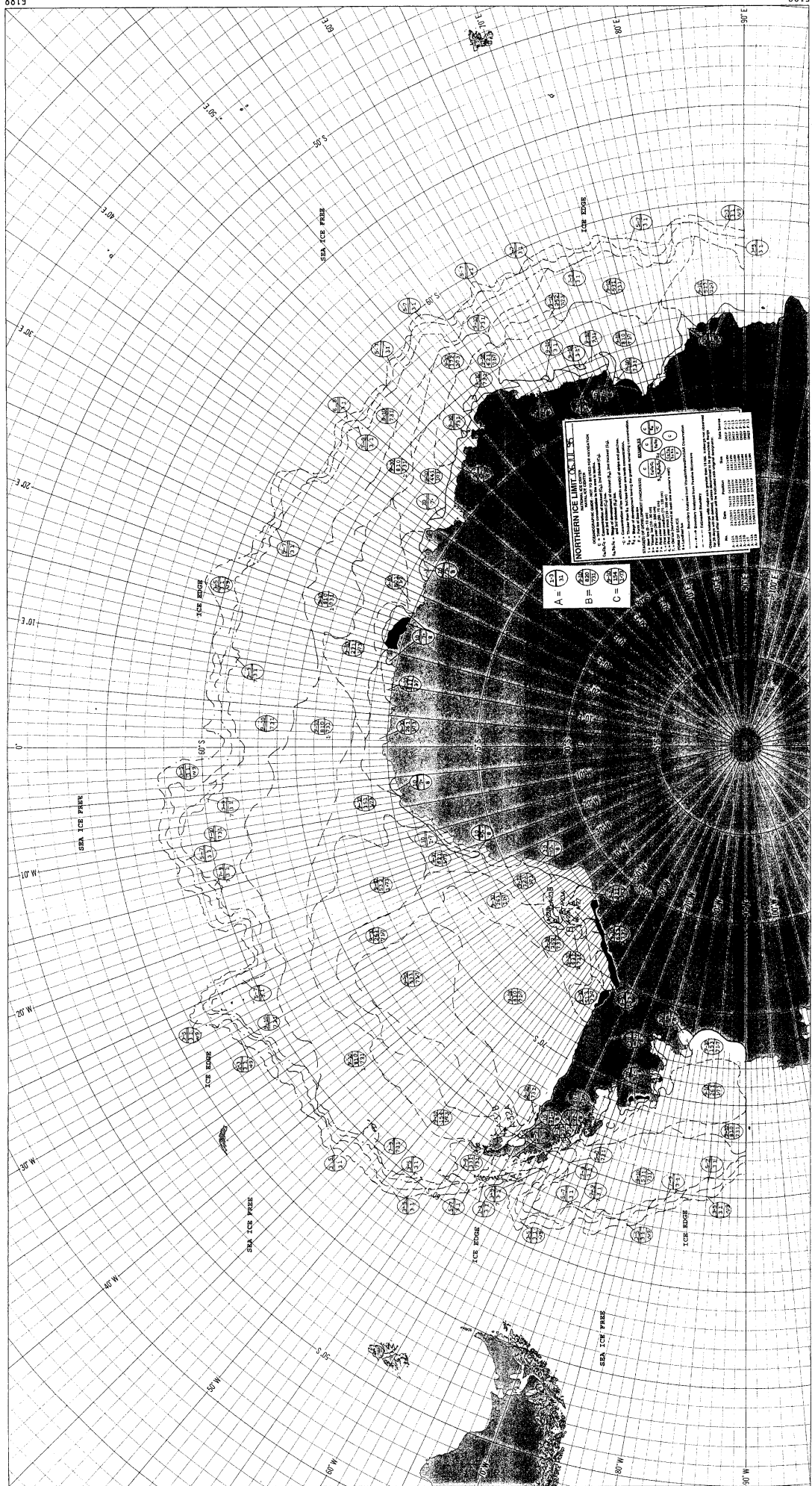
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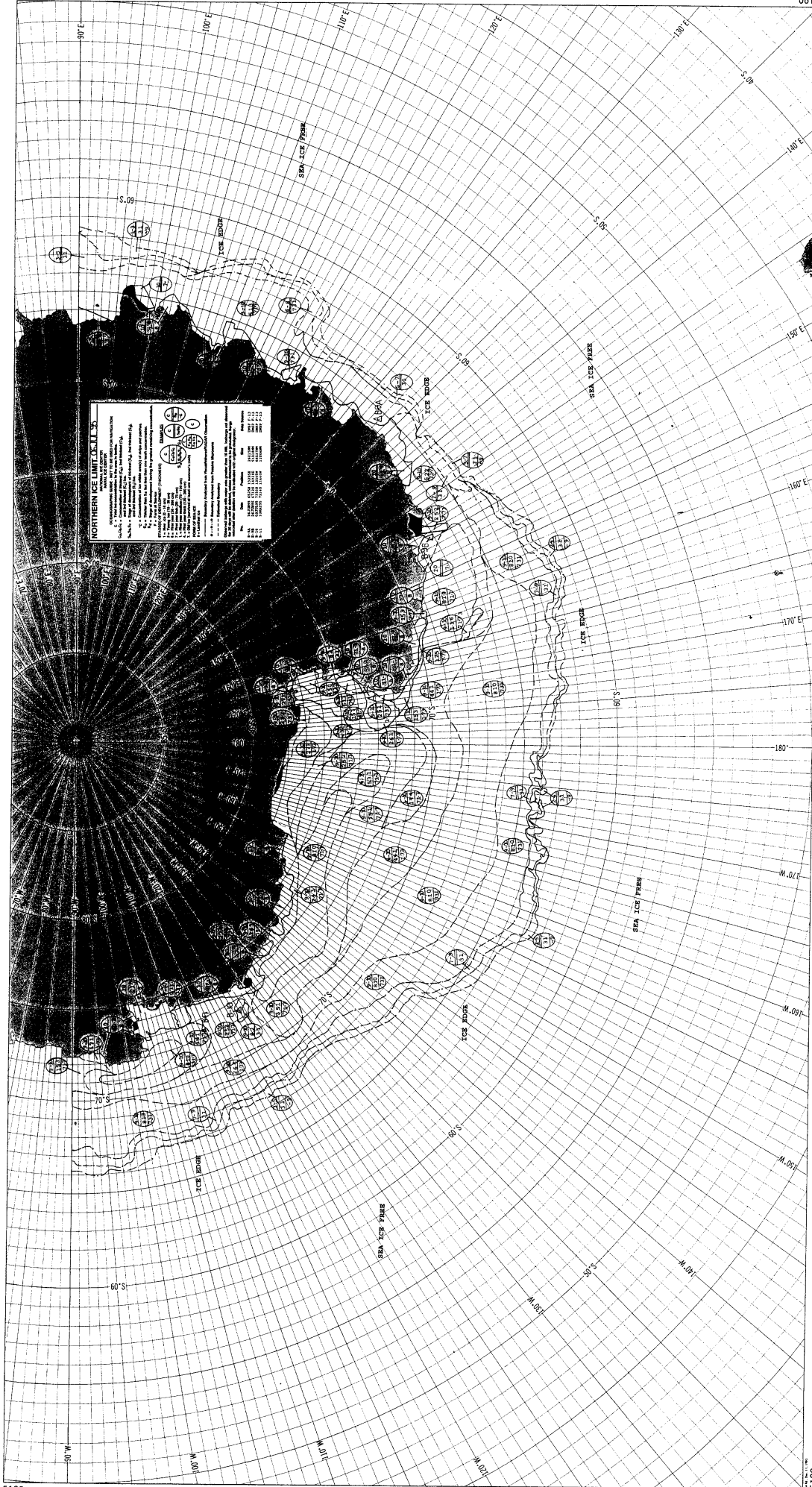


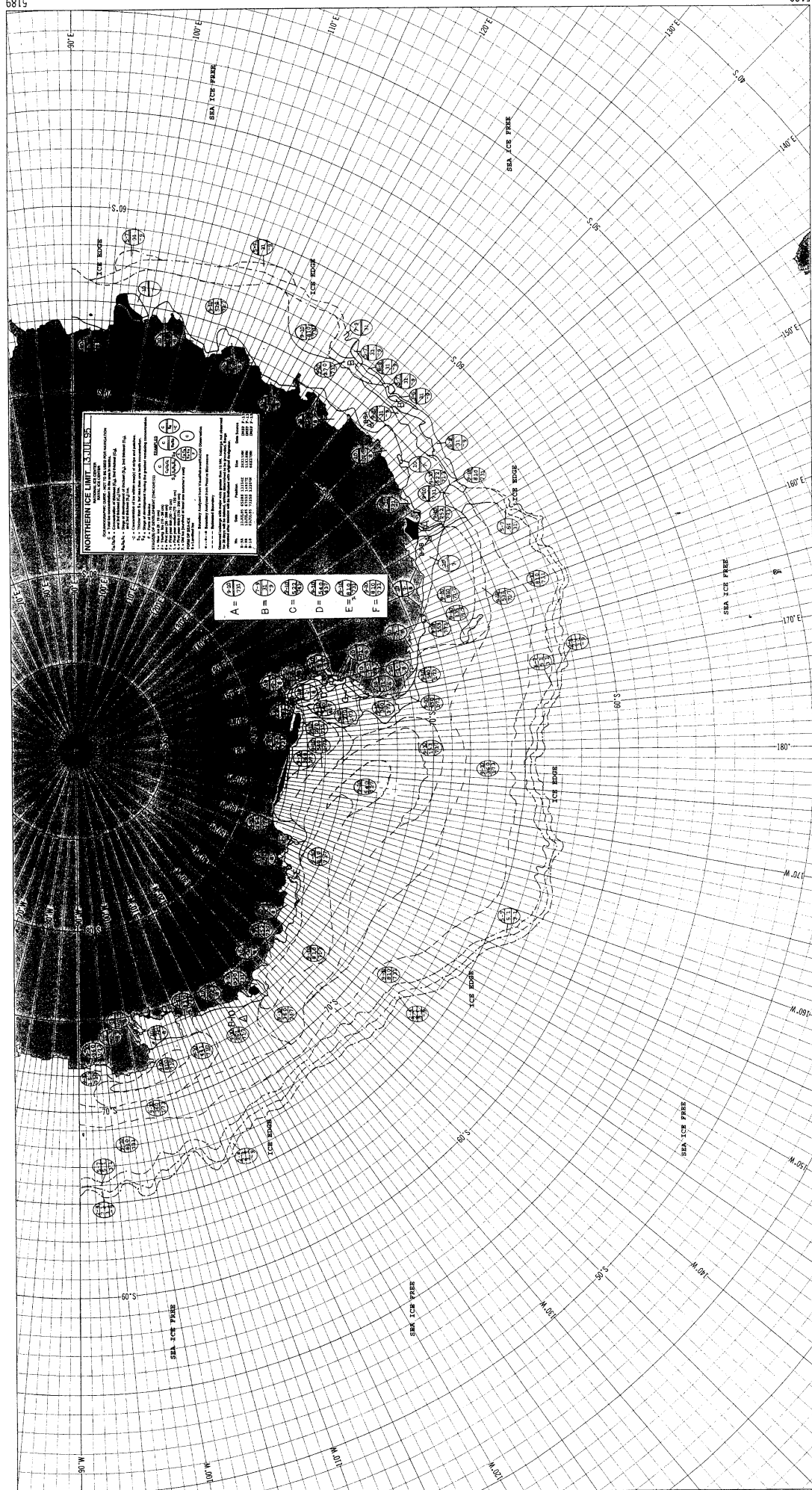
Reprinted from "The Arctic" by the U.S. Navy

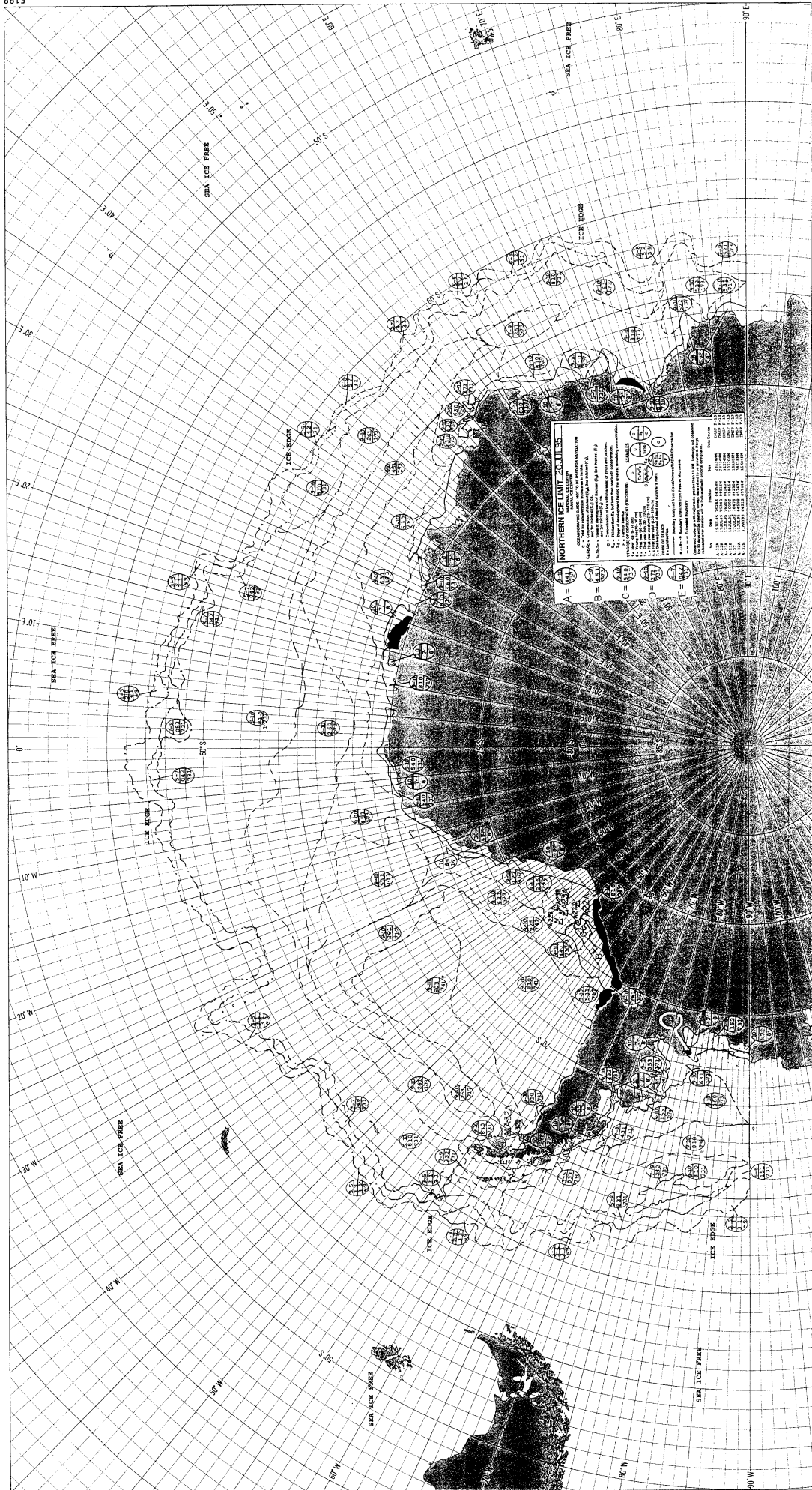
Reprinted from "The Arctic" by the U.S. Navy





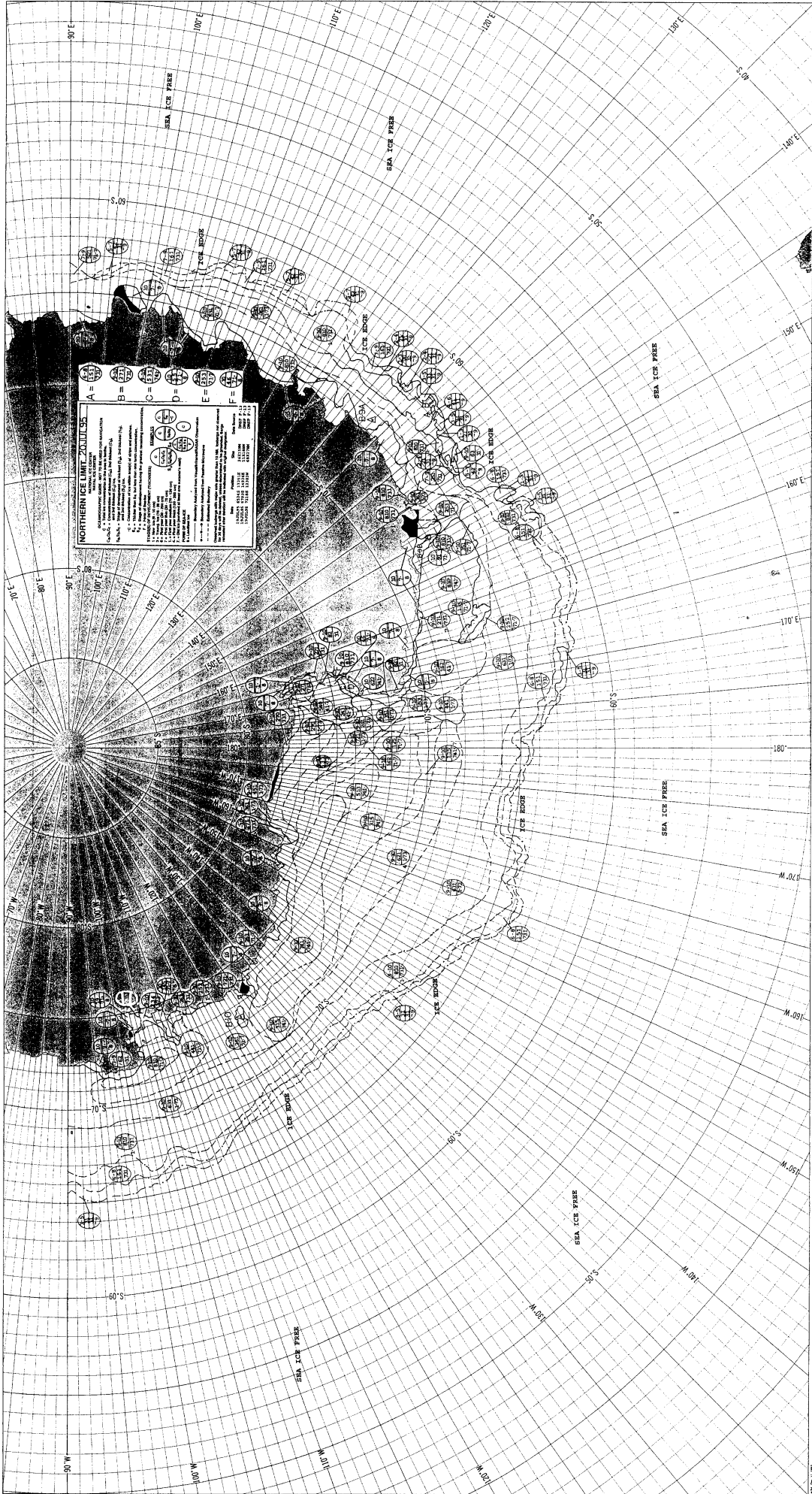




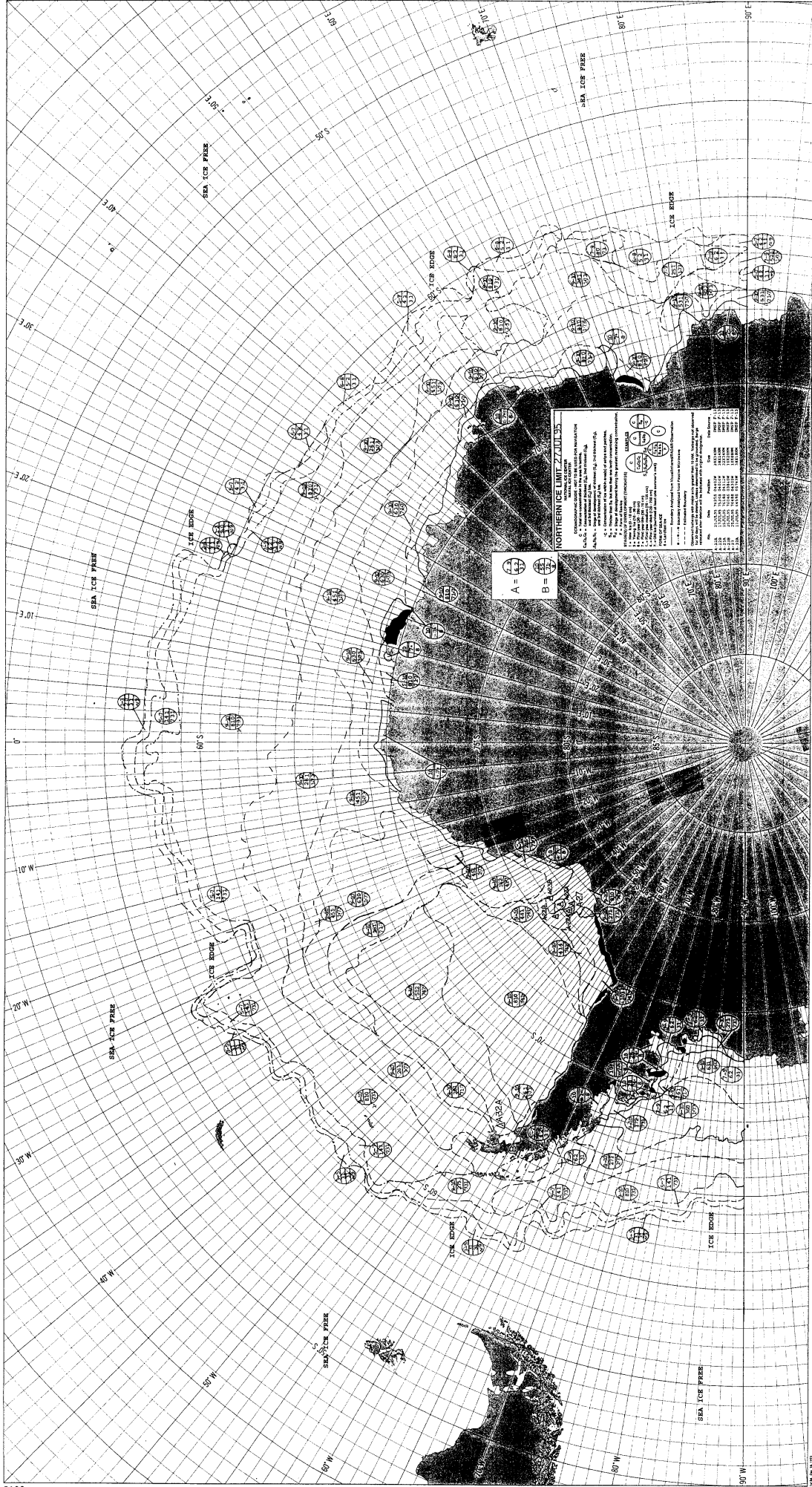


Projection: Polar Stereographic
Scale: 1:500,000

Source: U.S. Navy Hydrographic Office
Copyright: 1955



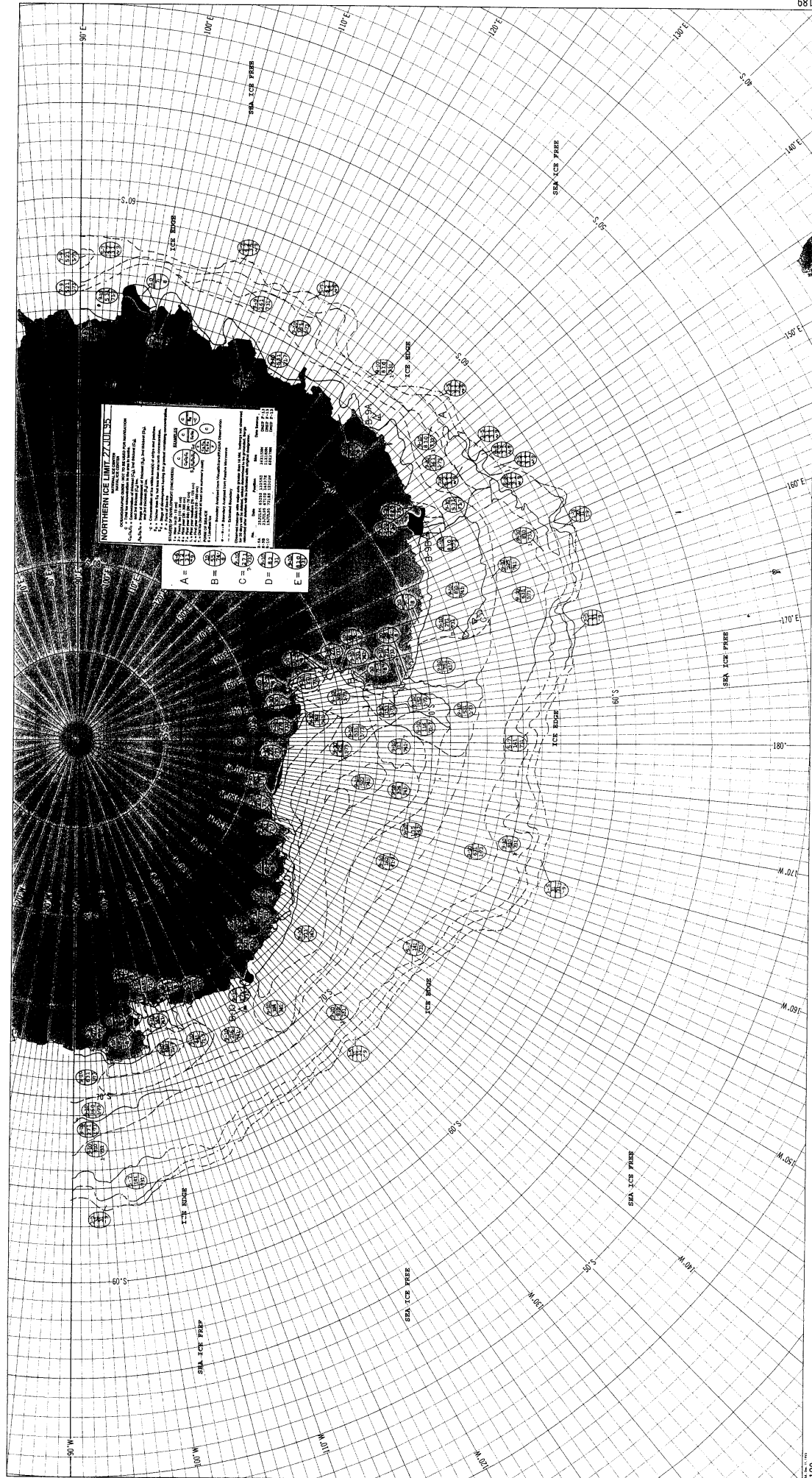
NORTHERN ICE LIMIT
This chart is a reproduction of the original chart published by the Hydrographic Office, Washington, D.C., in 1914. It is a nautical chart of the Arctic region, showing the outlines of the continents of North America, Eurasia, and Greenland. The chart is oriented with North at the top. The map is covered by a grid of latitude and longitude lines. Latitude is marked from 0° to 90° N, and longitude is marked from 0° to 360° (labeled as 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330, 360). The map shows numerous circular symbols, each containing a number and a letter, representing various navigational data points. Labels such as 'SEA ICE FREE' and 'ICE EDGE' are scattered throughout the map. A large, dark, irregularly shaped area is visible in the upper left quadrant, representing a landmass. A small rectangular box containing text and symbols is located in the upper right quadrant.

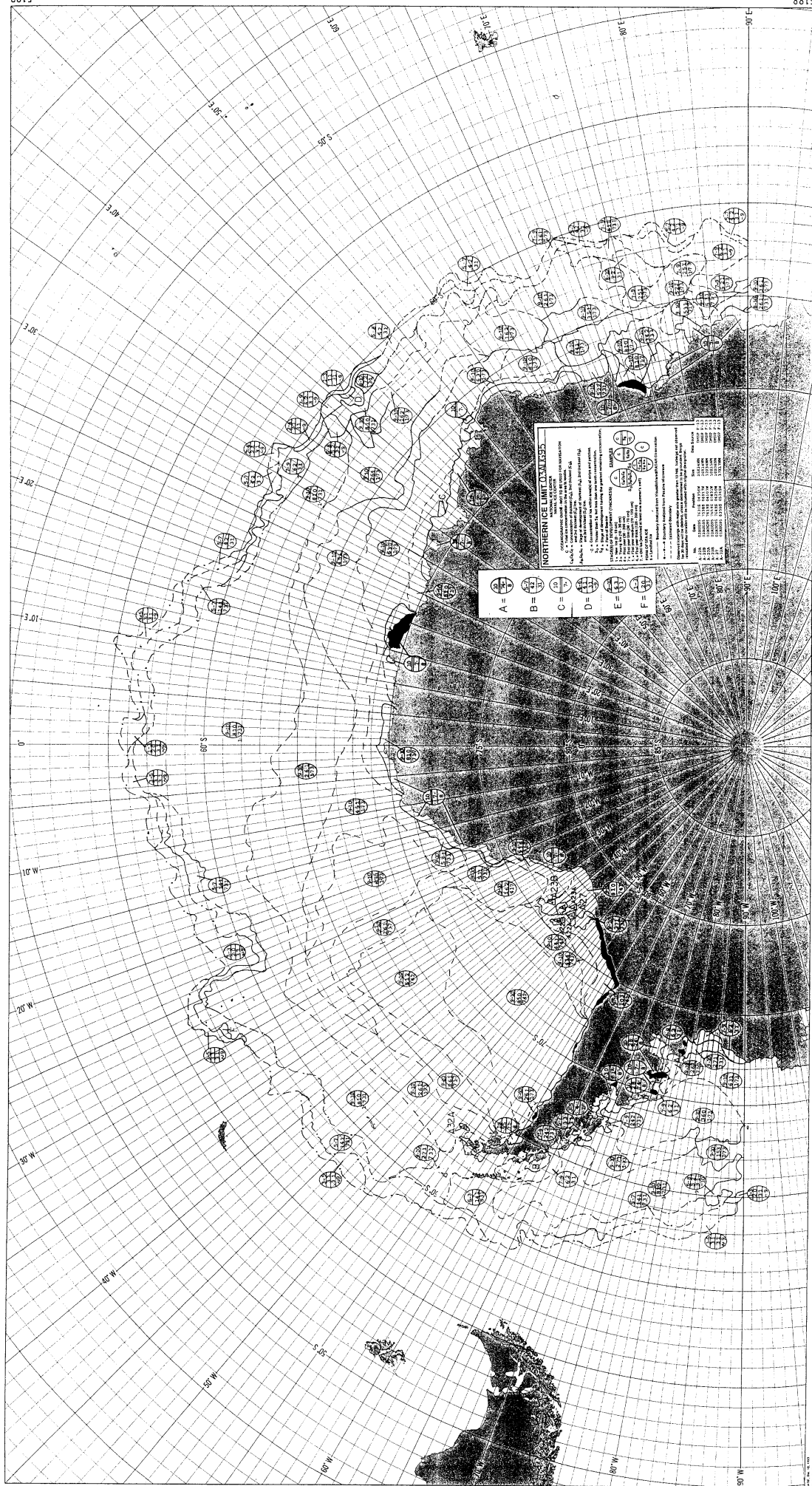


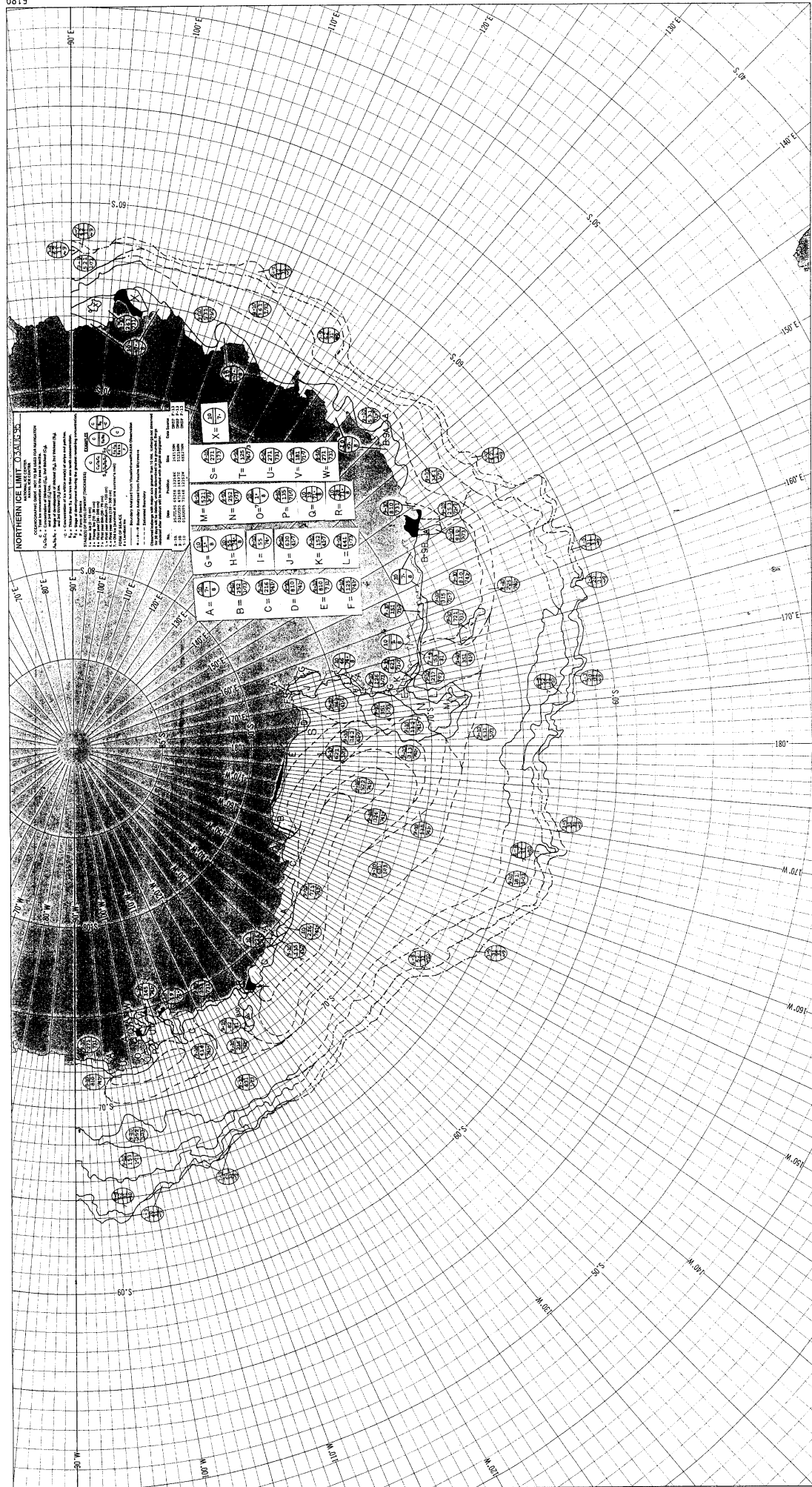
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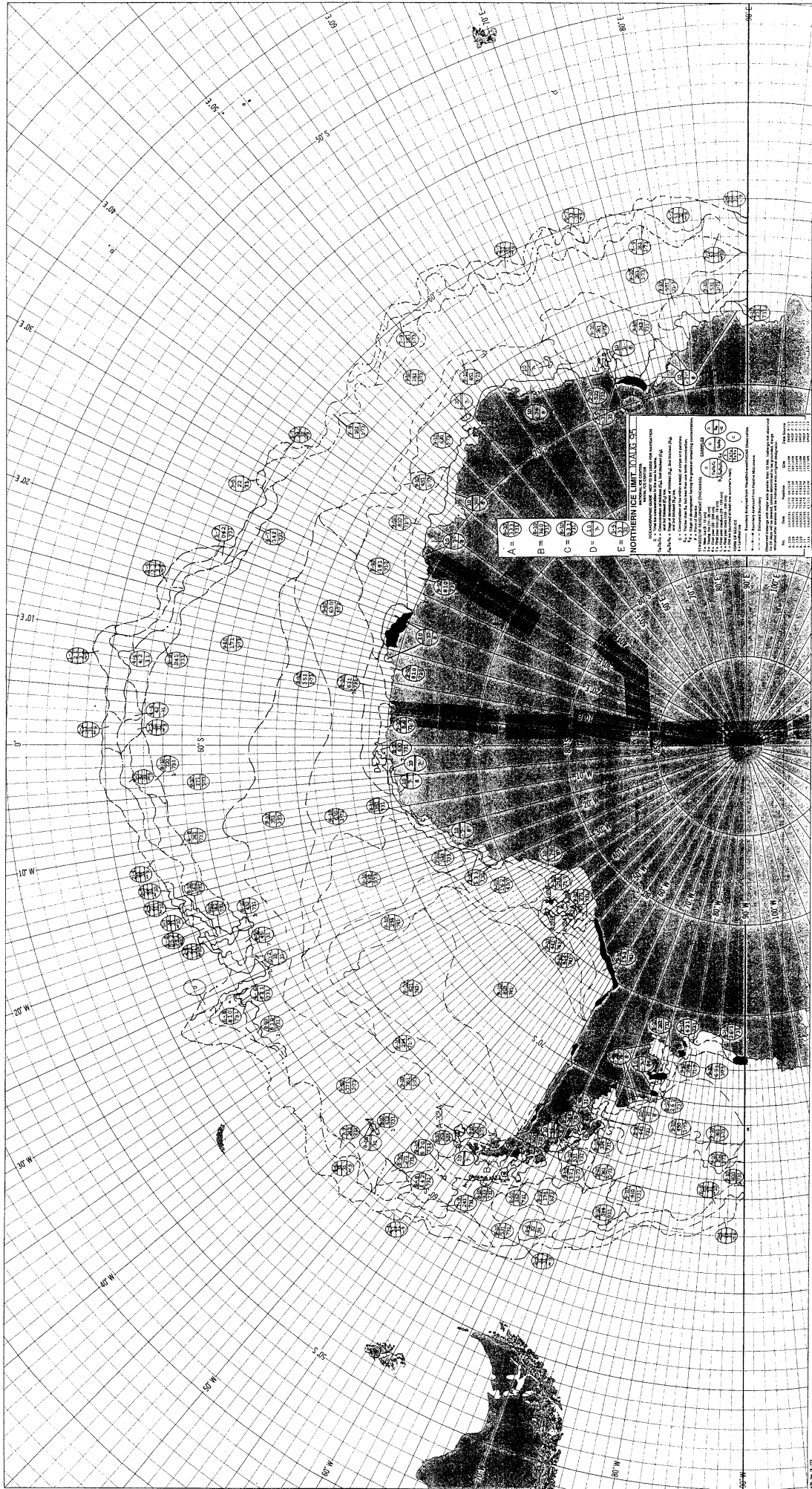
A

Source: U.S. Navy Hydrographic Office
Revised: 1955









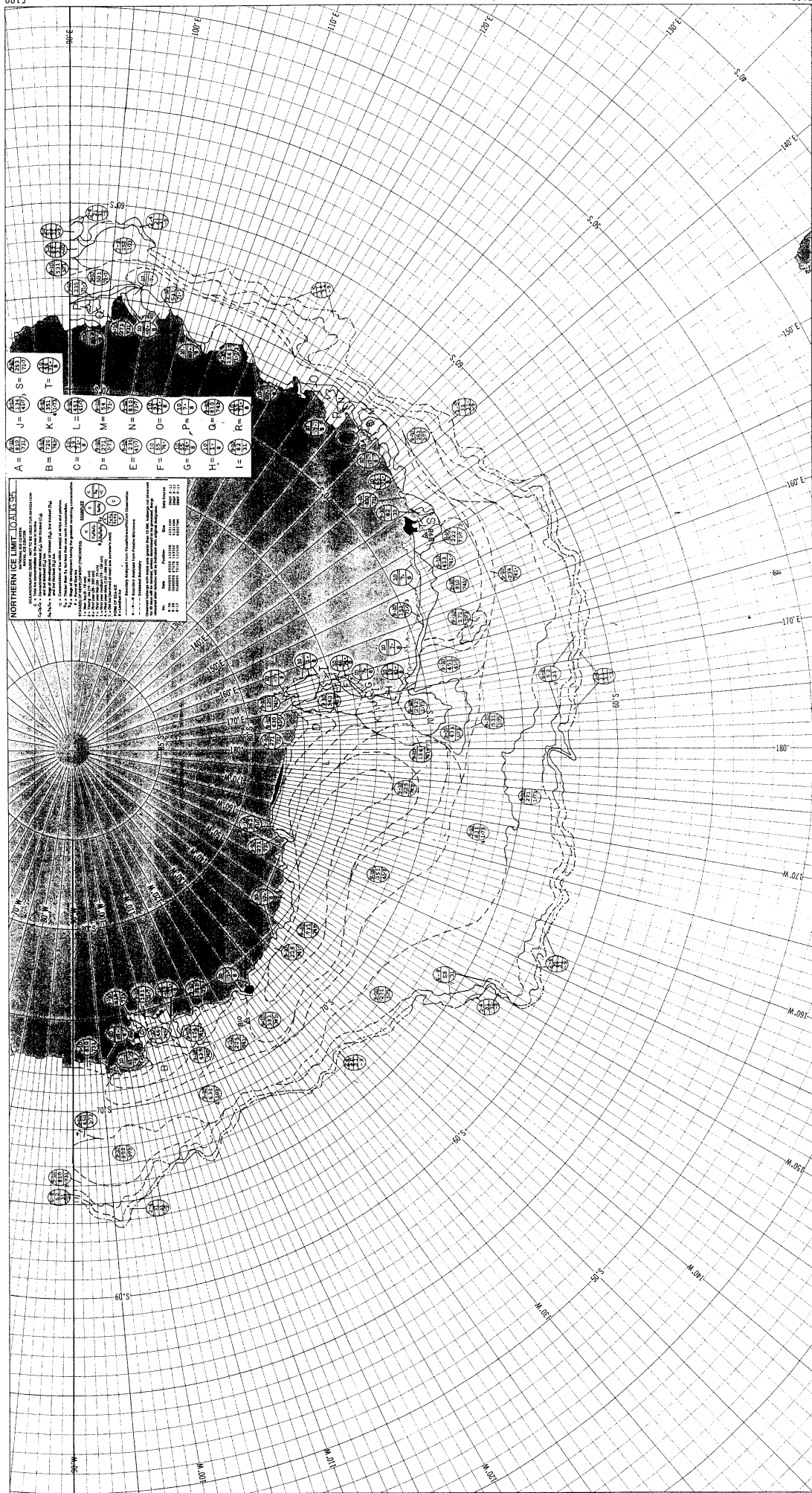
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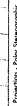
NORTHERN ICE LIMIT, JULY 15
A = 100% Ice
B = 75% Ice
C = 50% Ice
D = 25% Ice
E = No Ice

ICE INFORMATION

1. Icebergs are shown by the letters A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, and by the numbers 1 through 9. The letters A through Z are used for icebergs of the following types: A - Iceberg, B - Iceberg, C - Iceberg, D - Iceberg, E - Iceberg, F - Iceberg, G - Iceberg, H - Iceberg, I - Iceberg, J - Iceberg, K - Iceberg, L - Iceberg, M - Iceberg, N - Iceberg, O - Iceberg, P - Iceberg, Q - Iceberg, R - Iceberg, S - Iceberg, T - Iceberg, U - Iceberg, V - Iceberg, W - Iceberg, X - Iceberg, Y - Iceberg, Z - Iceberg. The numbers 1 through 9 are used for icebergs of the following types: 1 - Iceberg, 2 - Iceberg, 3 - Iceberg, 4 - Iceberg, 5 - Iceberg, 6 - Iceberg, 7 - Iceberg, 8 - Iceberg, 9 - Iceberg.

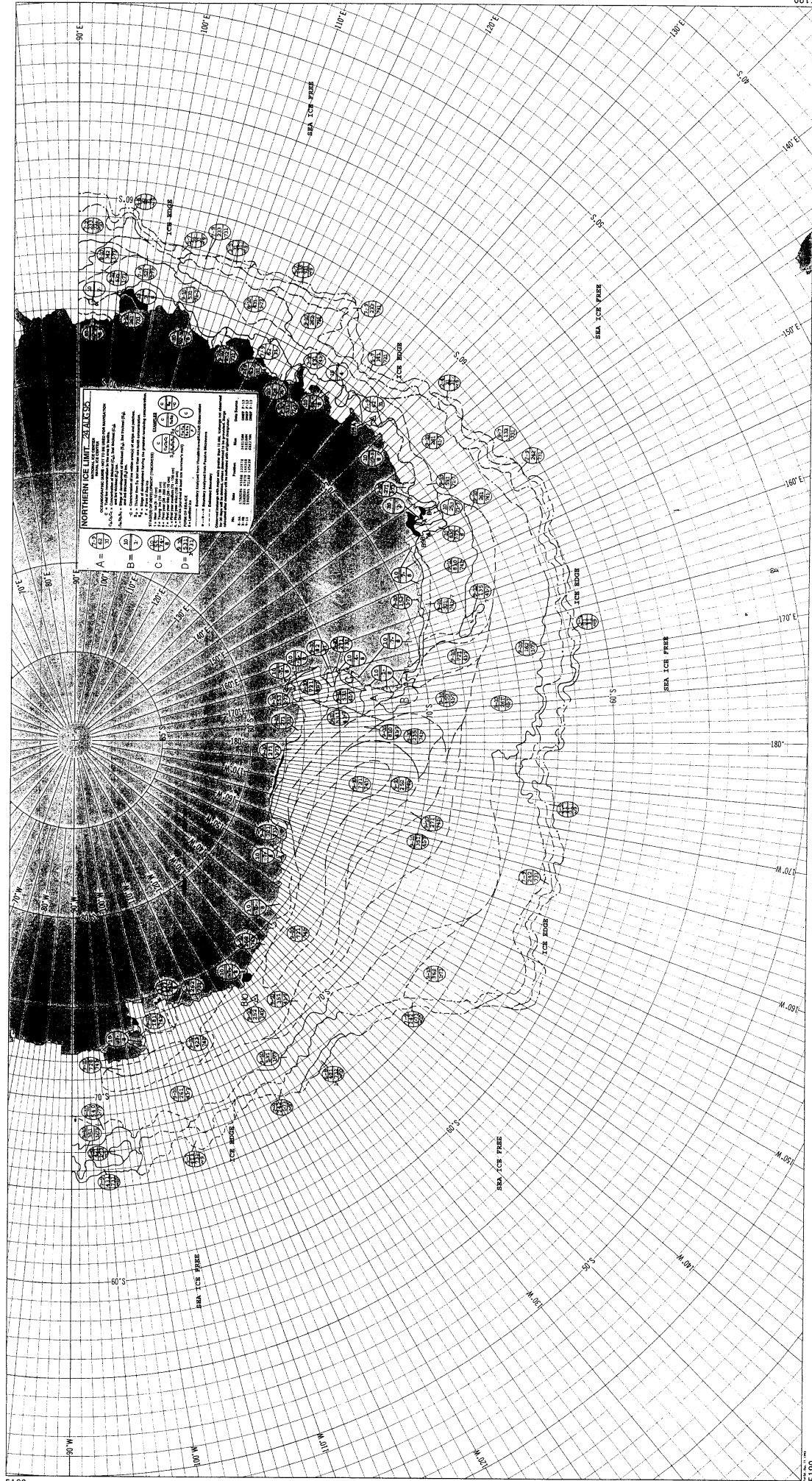
2. Icebergs are shown by the letters A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, and by the numbers 1 through 9. The letters A through Z are used for icebergs of the following types: A - Iceberg, B - Iceberg, C - Iceberg, D - Iceberg, E - Iceberg, F - Iceberg, G - Iceberg, H - Iceberg, I - Iceberg, J - Iceberg, K - Iceberg, L - Iceberg, M - Iceberg, N - Iceberg, O - Iceberg, P - Iceberg, Q - Iceberg, R - Iceberg, S - Iceberg, T - Iceberg, U - Iceberg, V - Iceberg, W - Iceberg, X - Iceberg, Y - Iceberg, Z - Iceberg. The numbers 1 through 9 are used for icebergs of the following types: 1 - Iceberg, 2 - Iceberg, 3 - Iceberg, 4 - Iceberg, 5 - Iceberg, 6 - Iceberg, 7 - Iceberg, 8 - Iceberg, 9 - Iceberg.

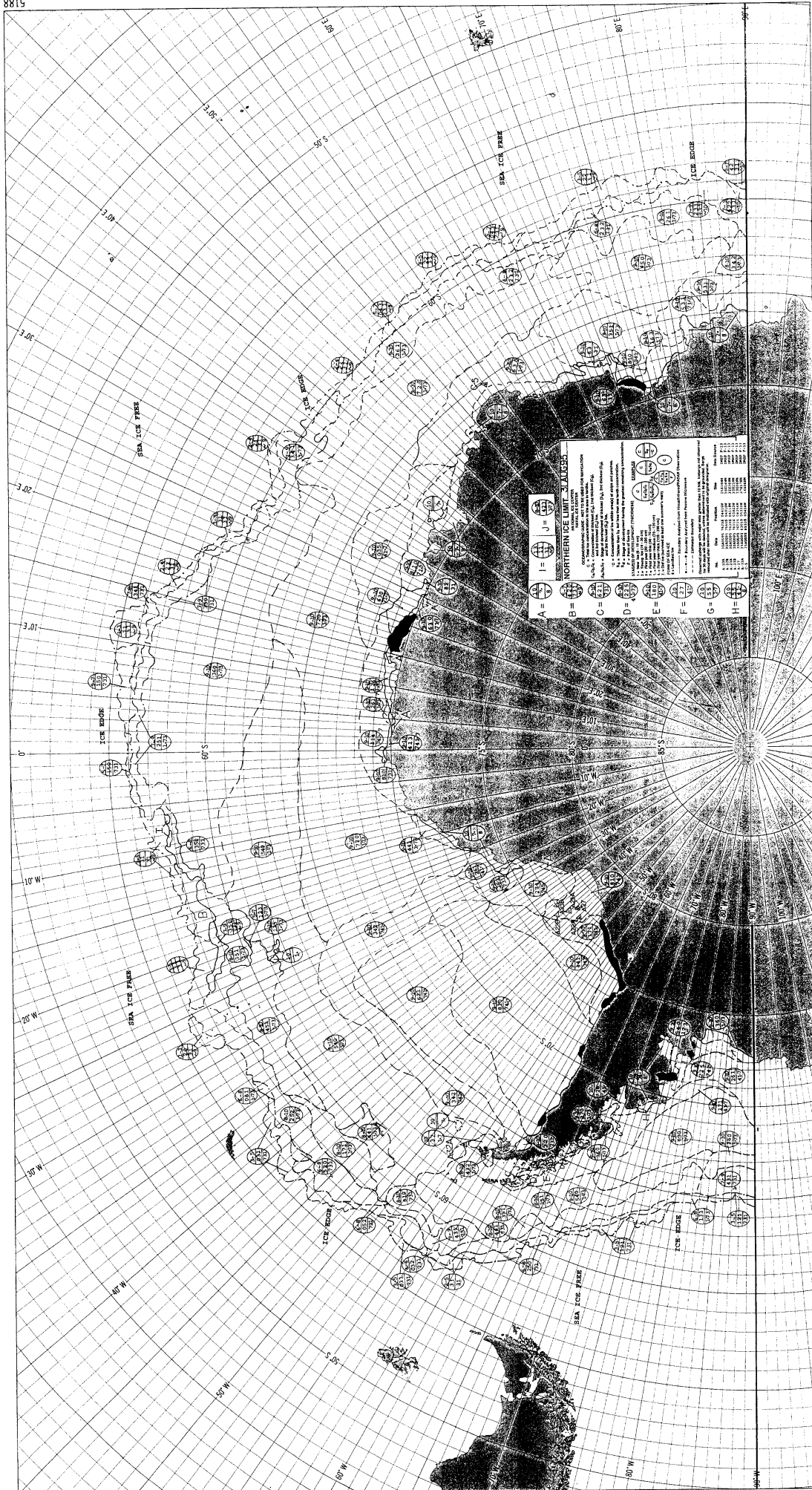






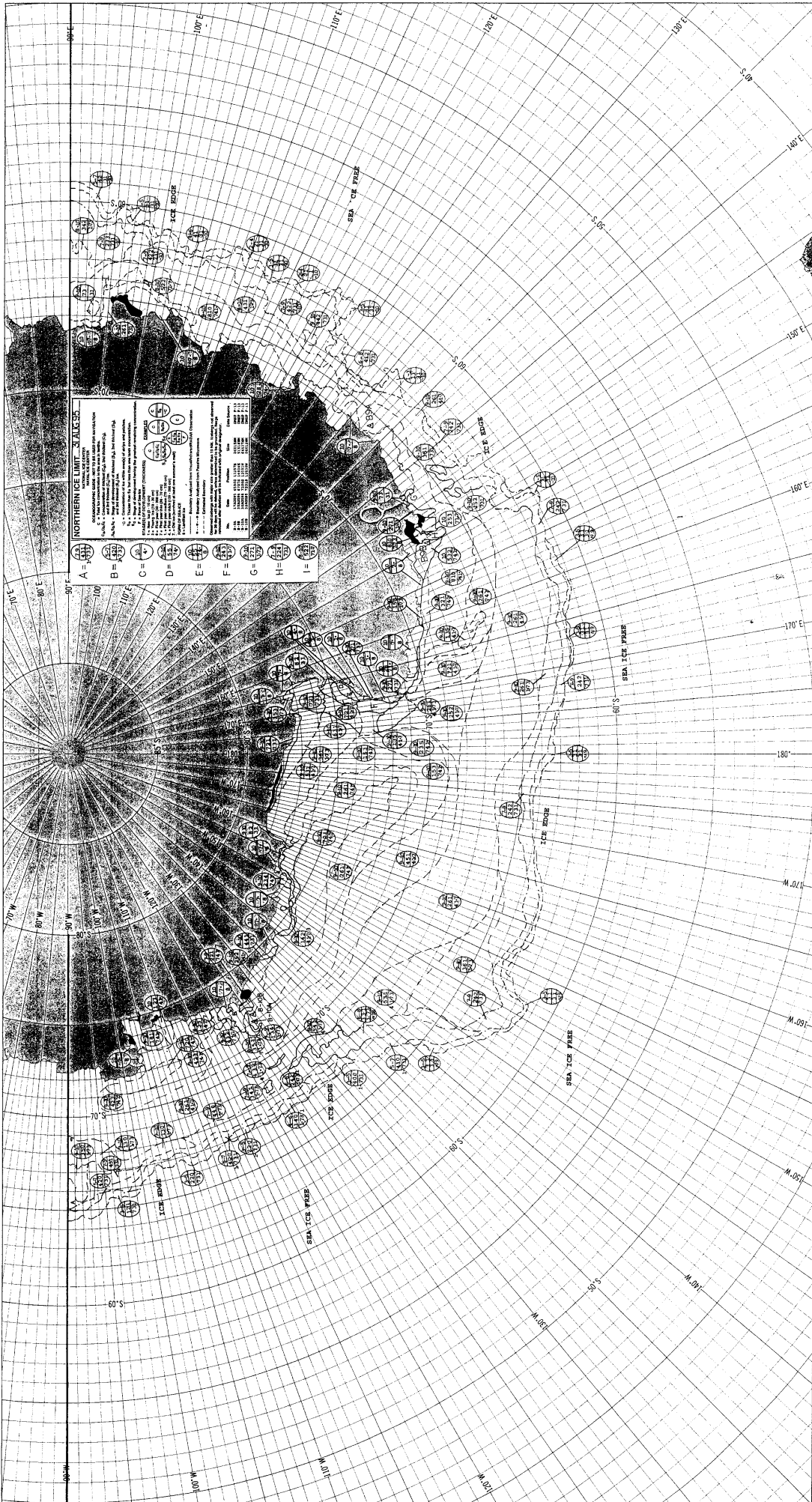




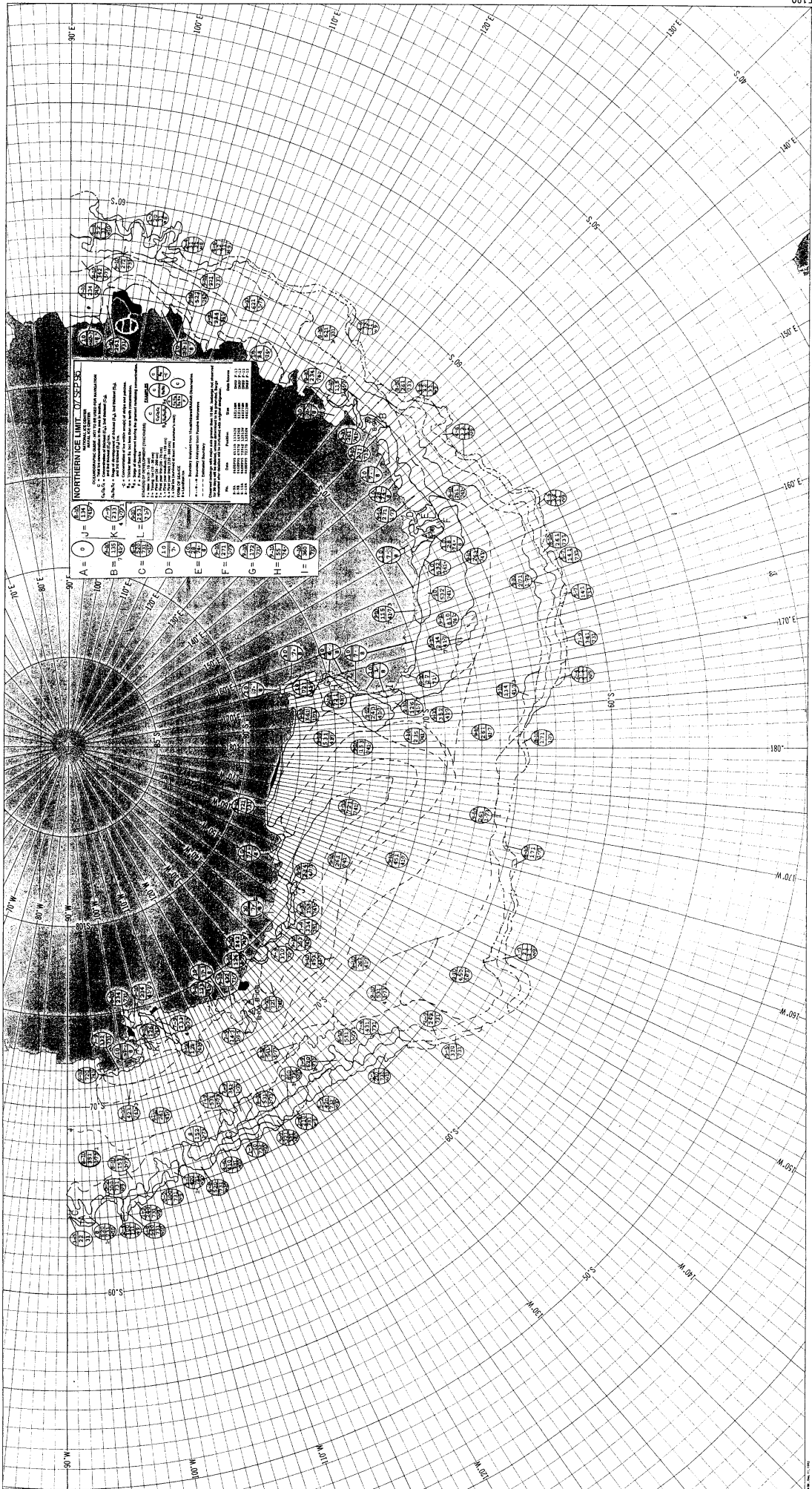


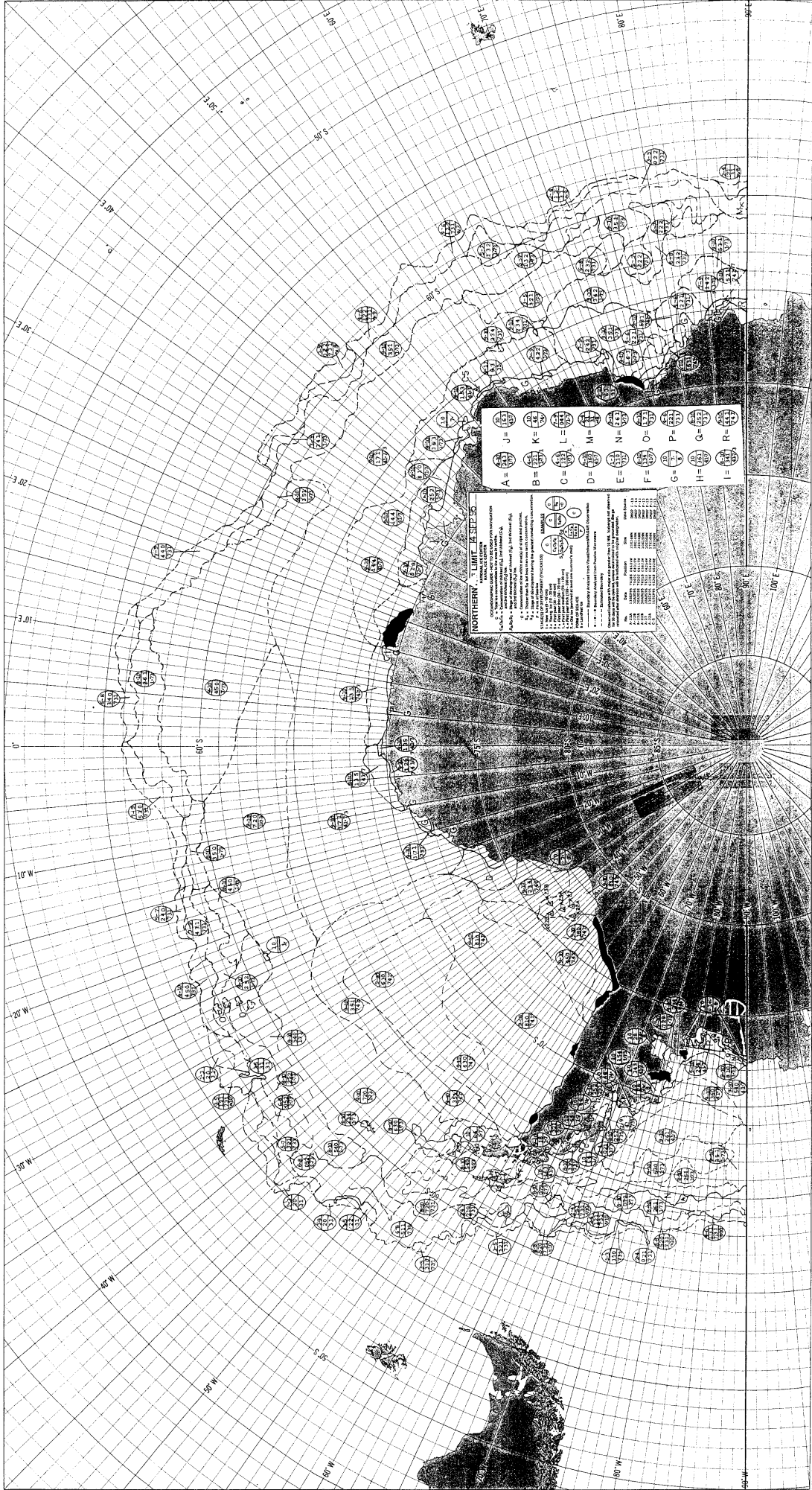
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Scale: 1:100,000

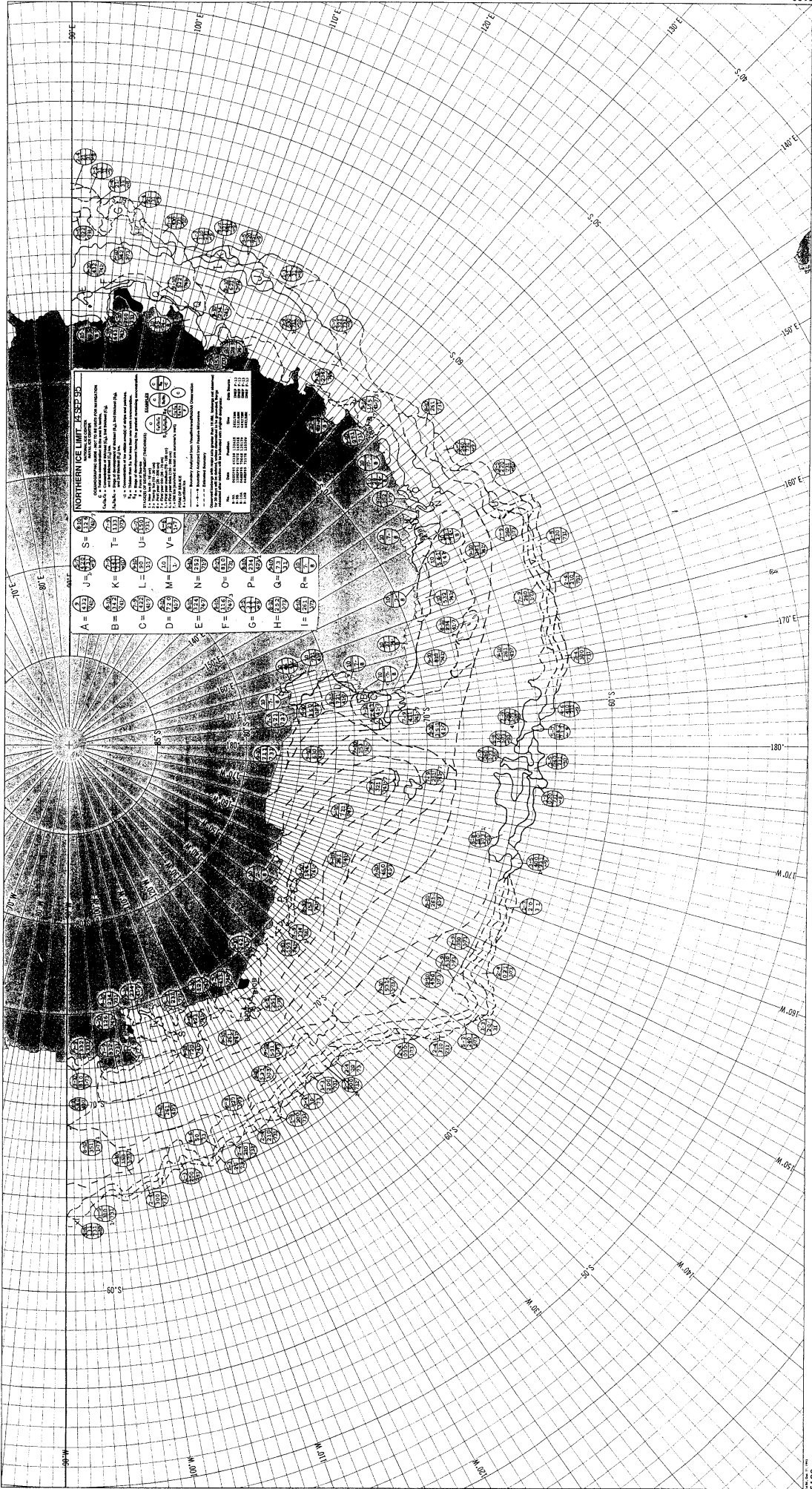
Source: U.S. Navy Hydrographic Office
Revised: 1955

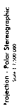


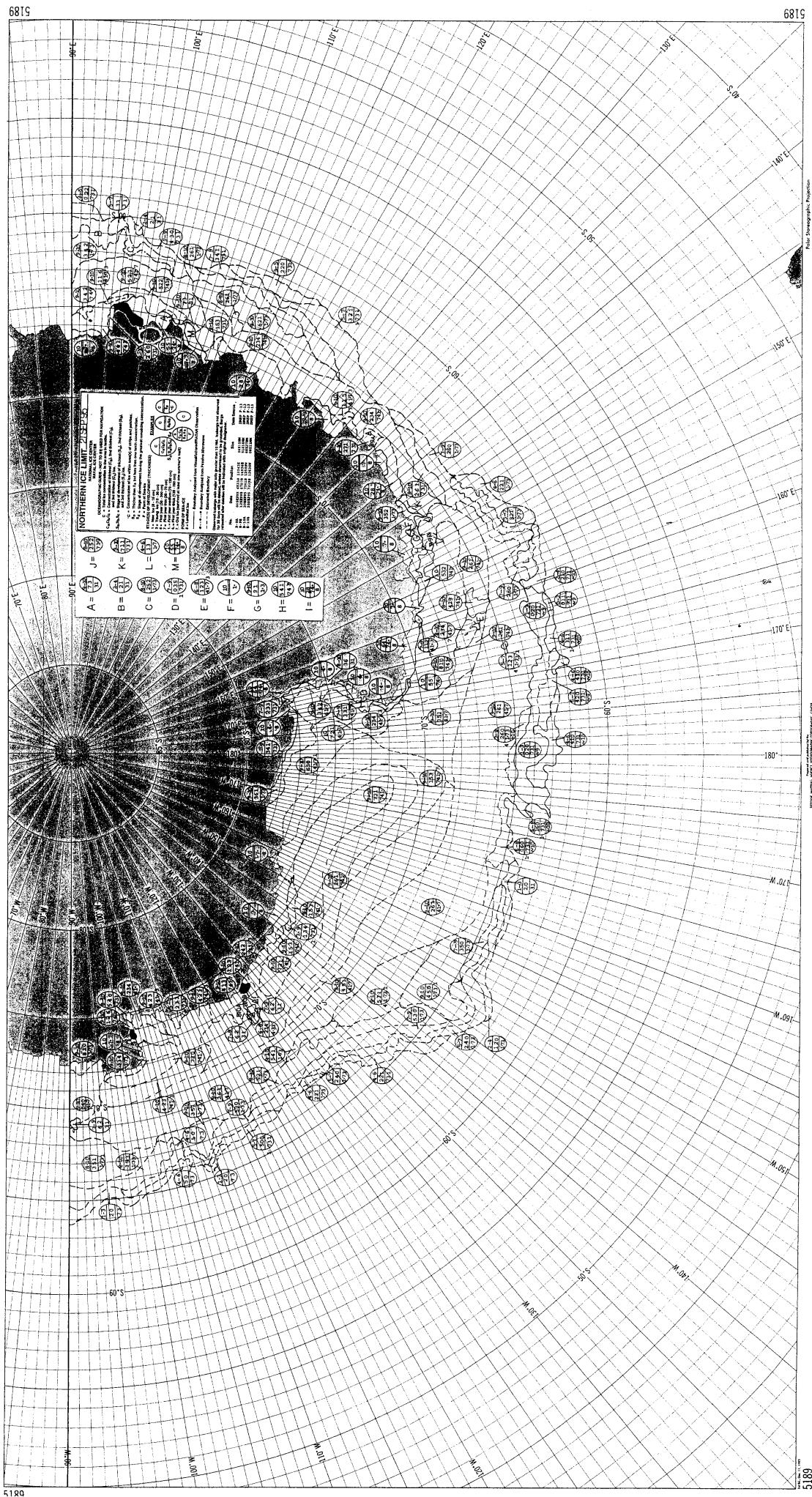


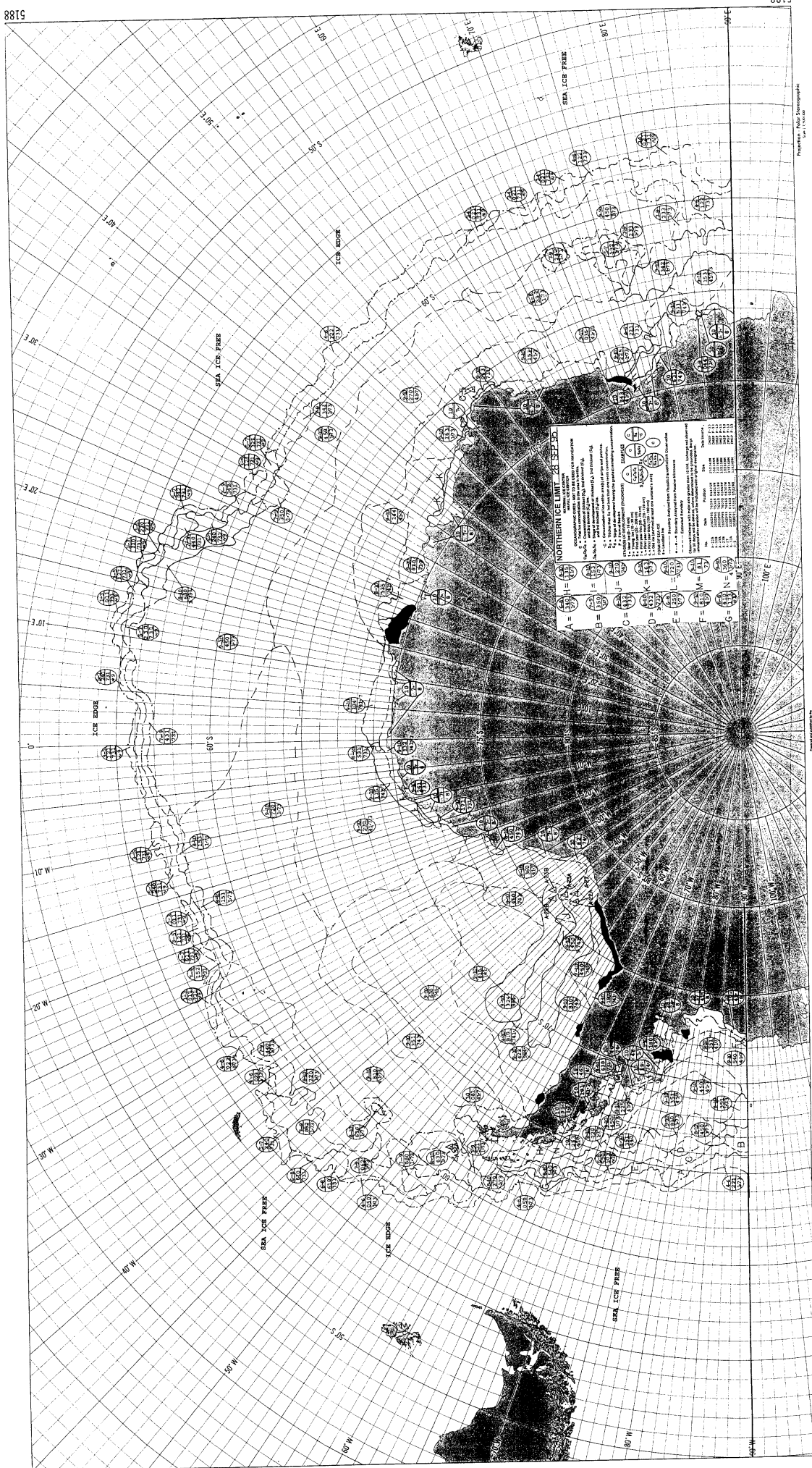






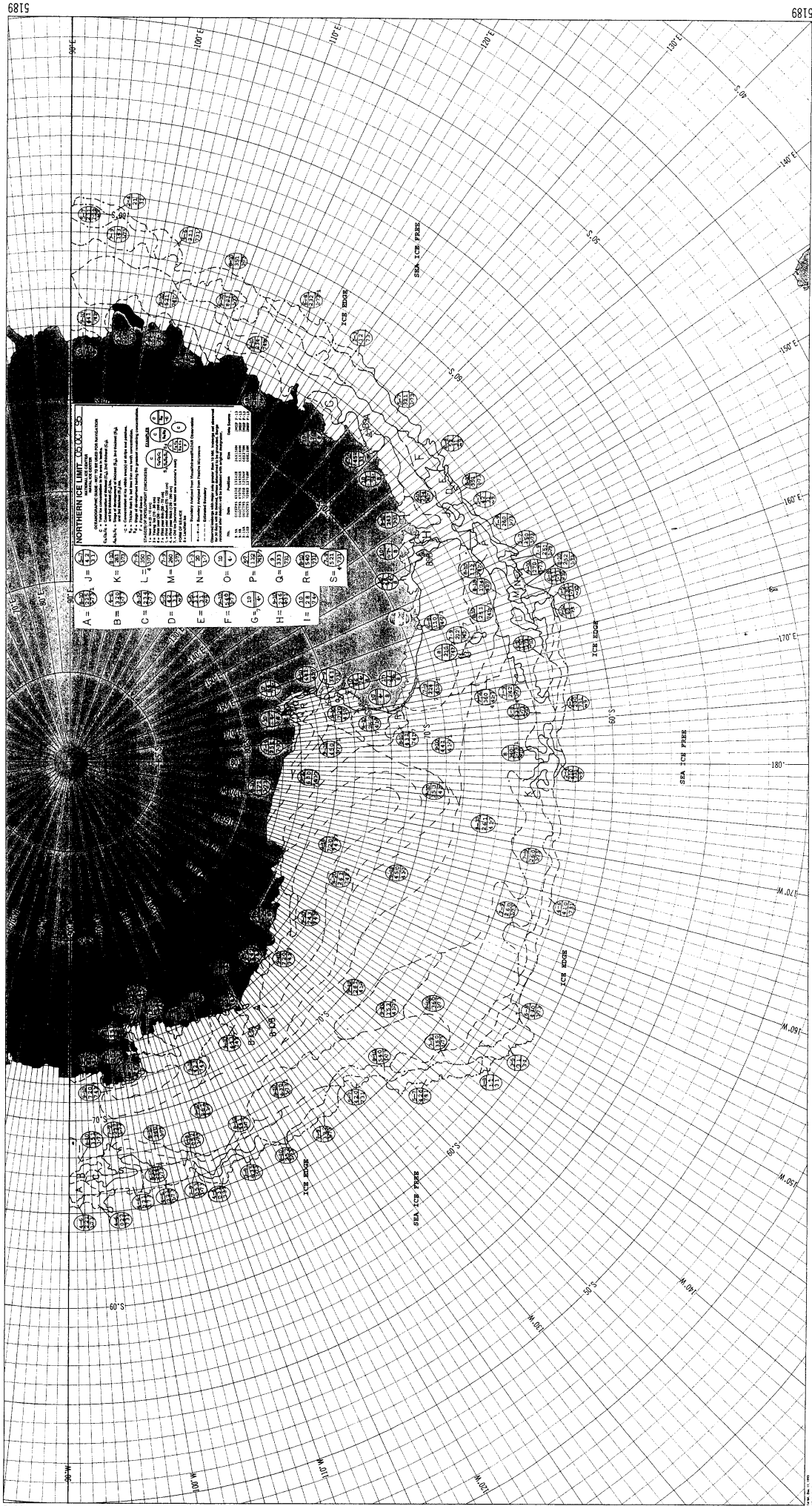


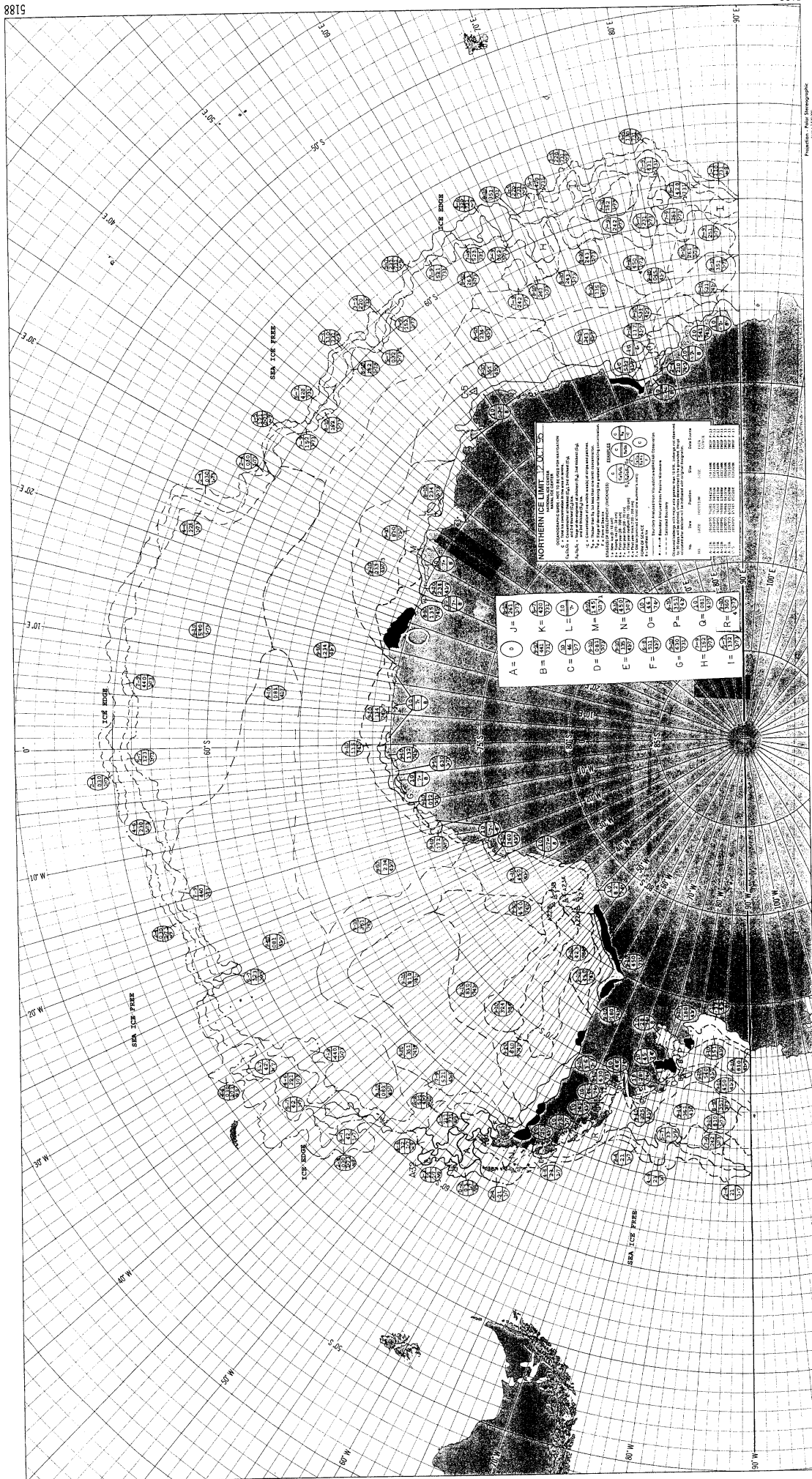


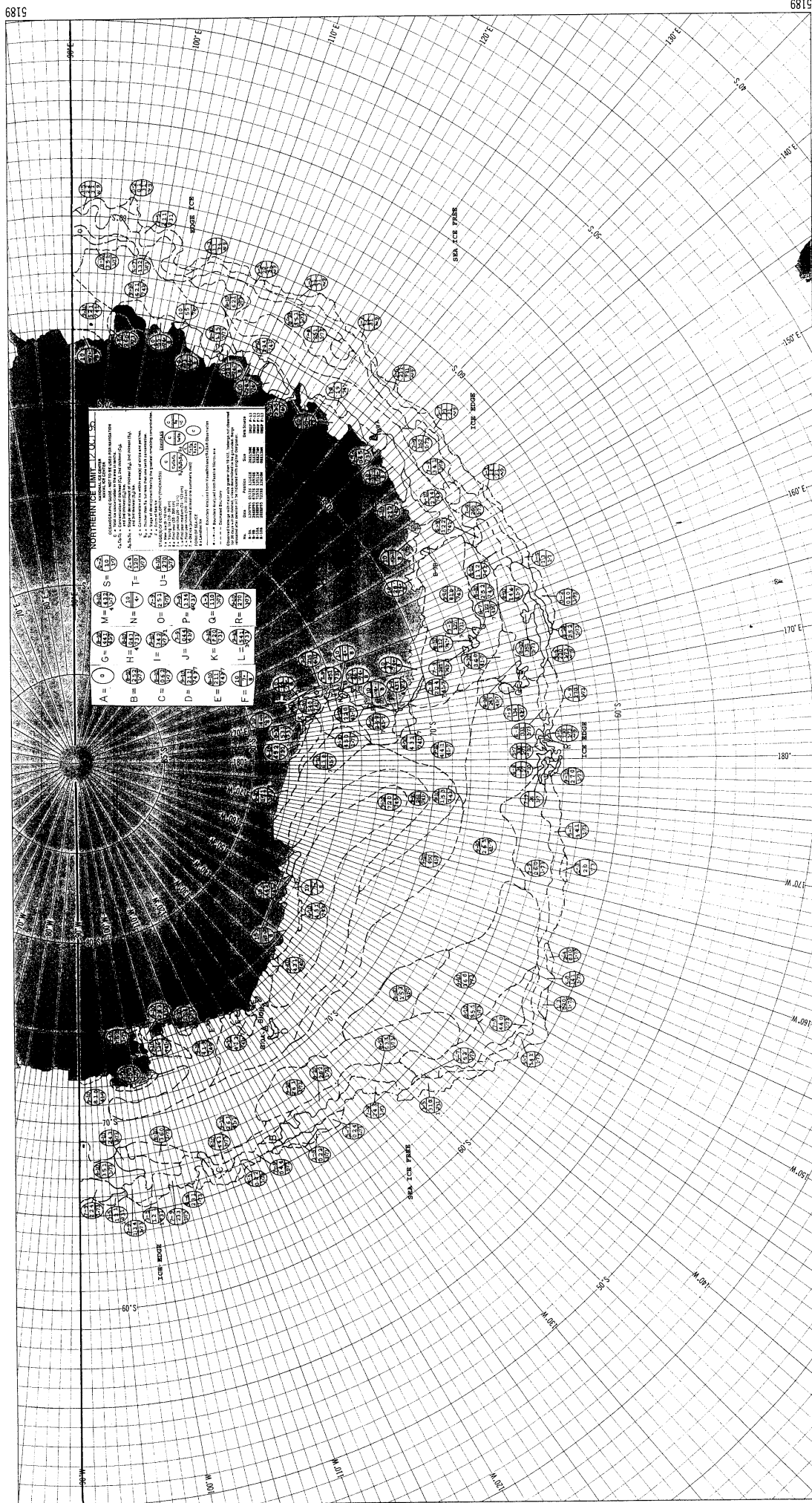


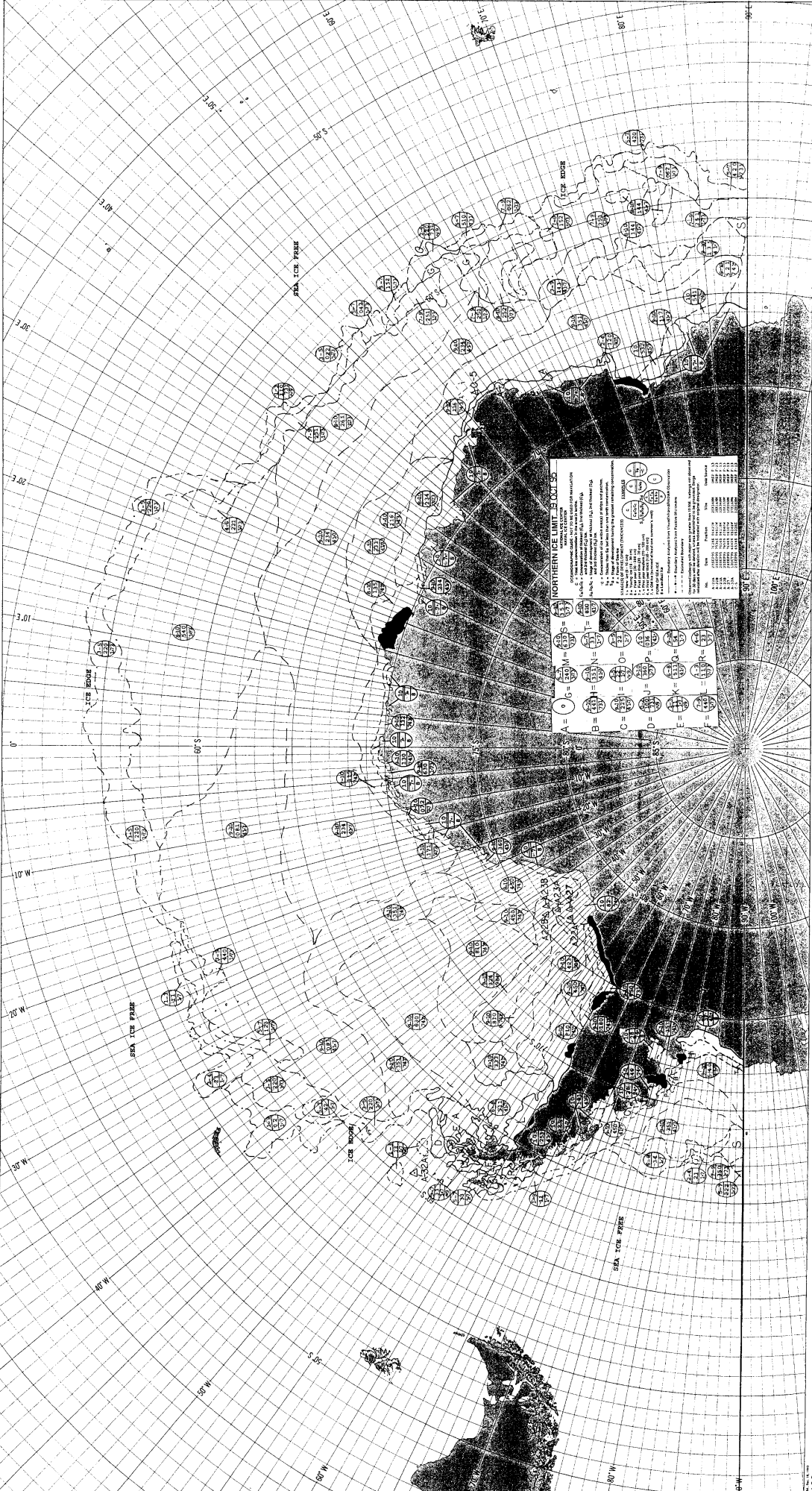




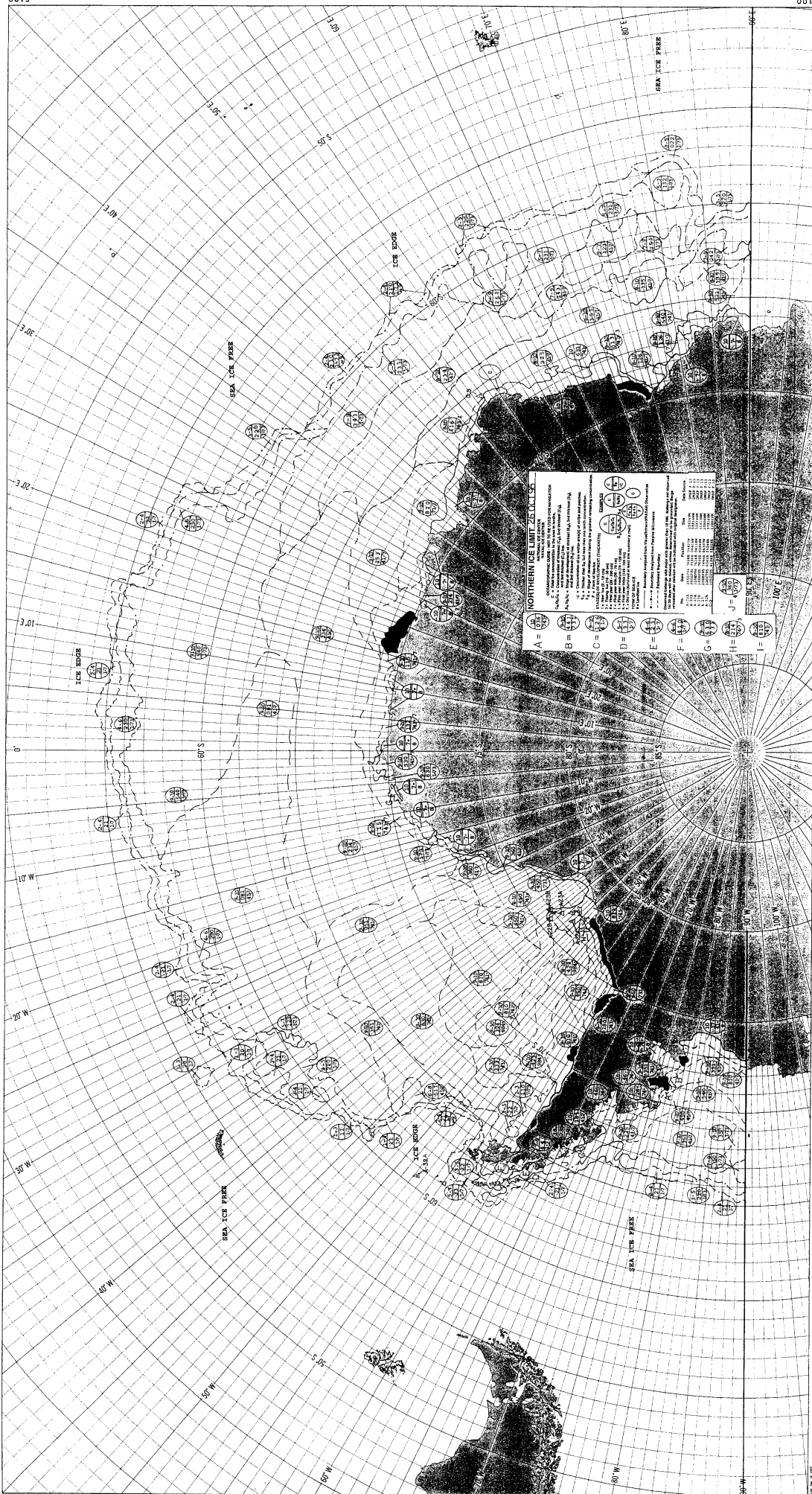








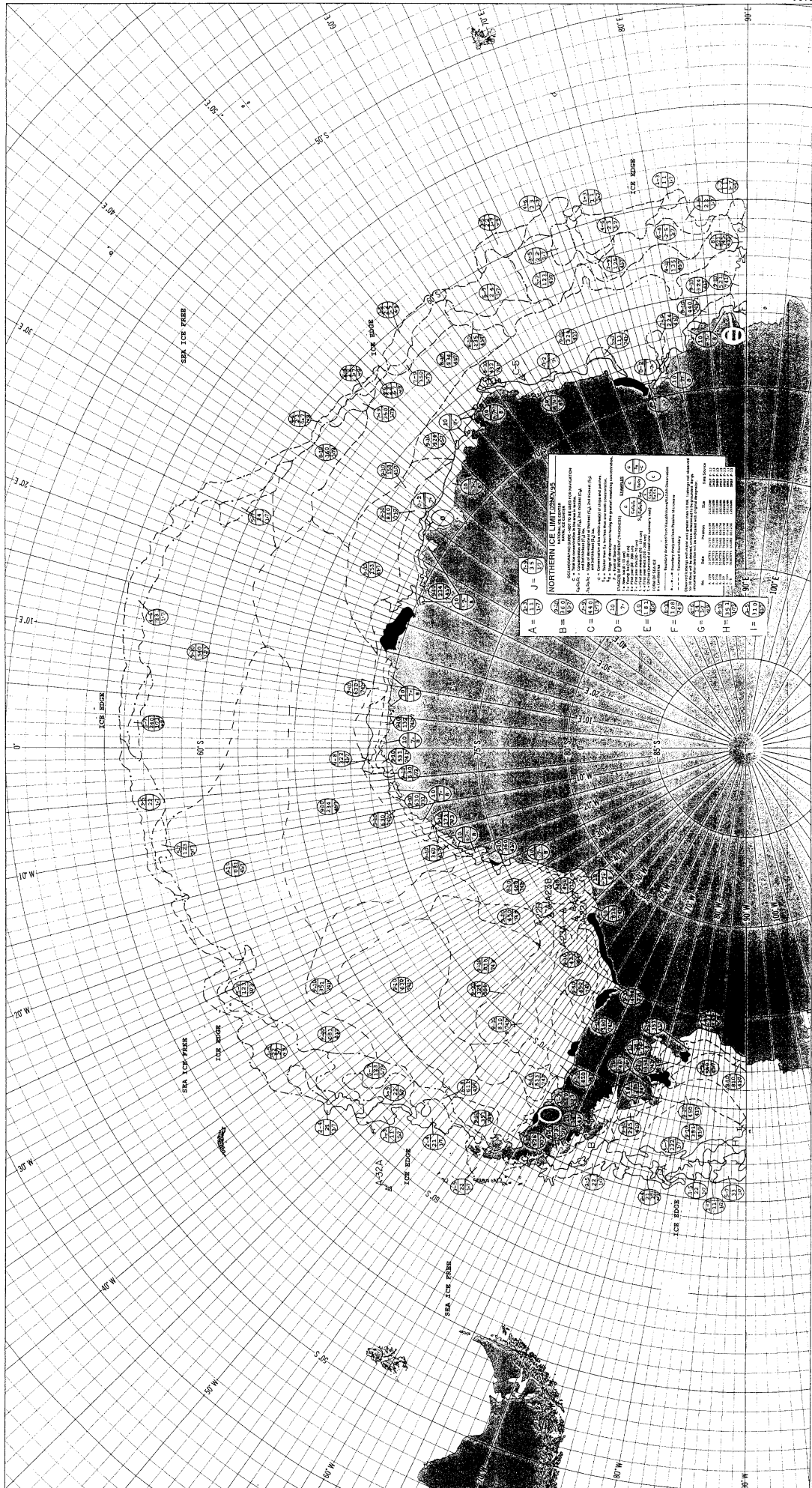


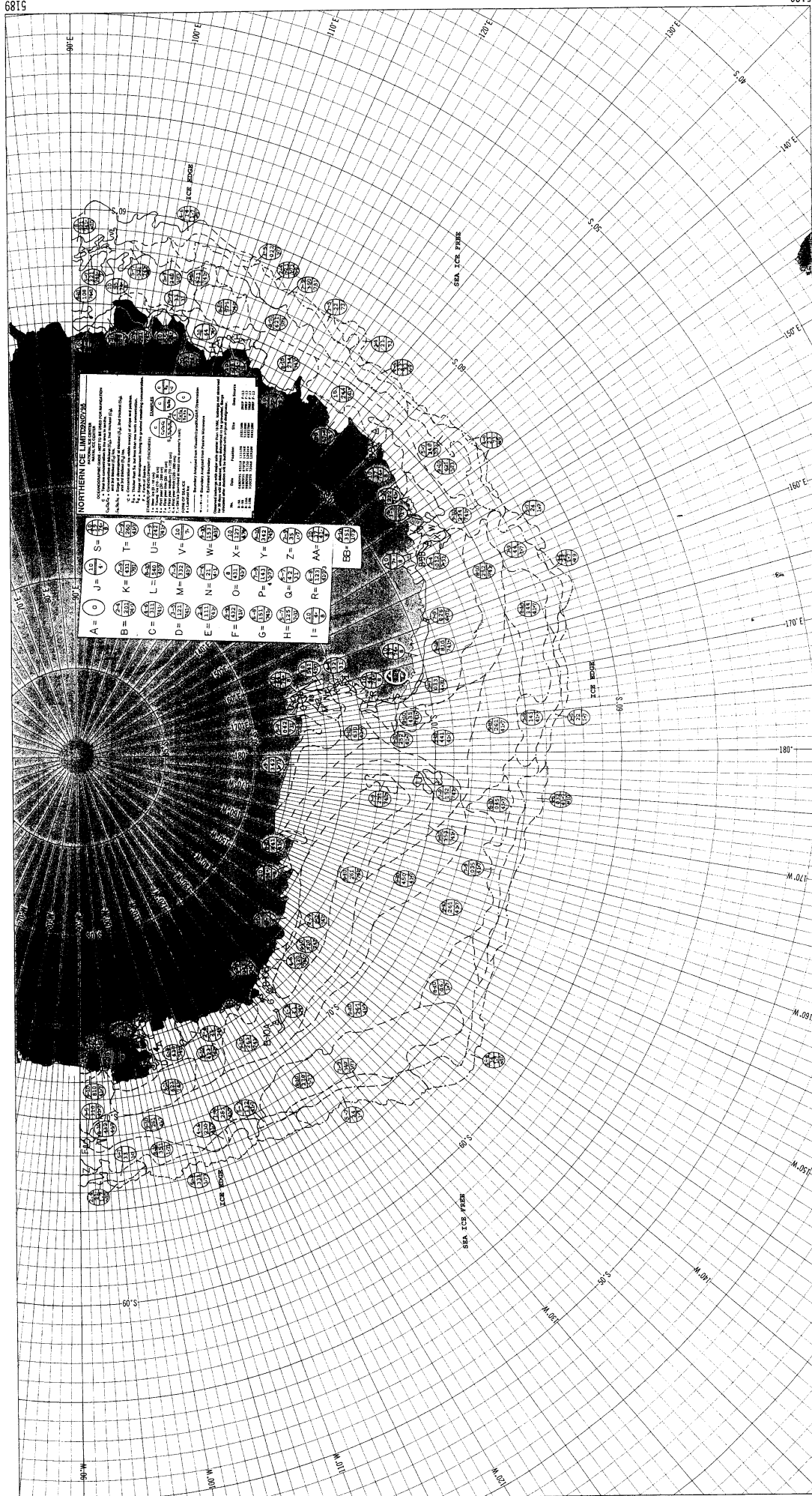


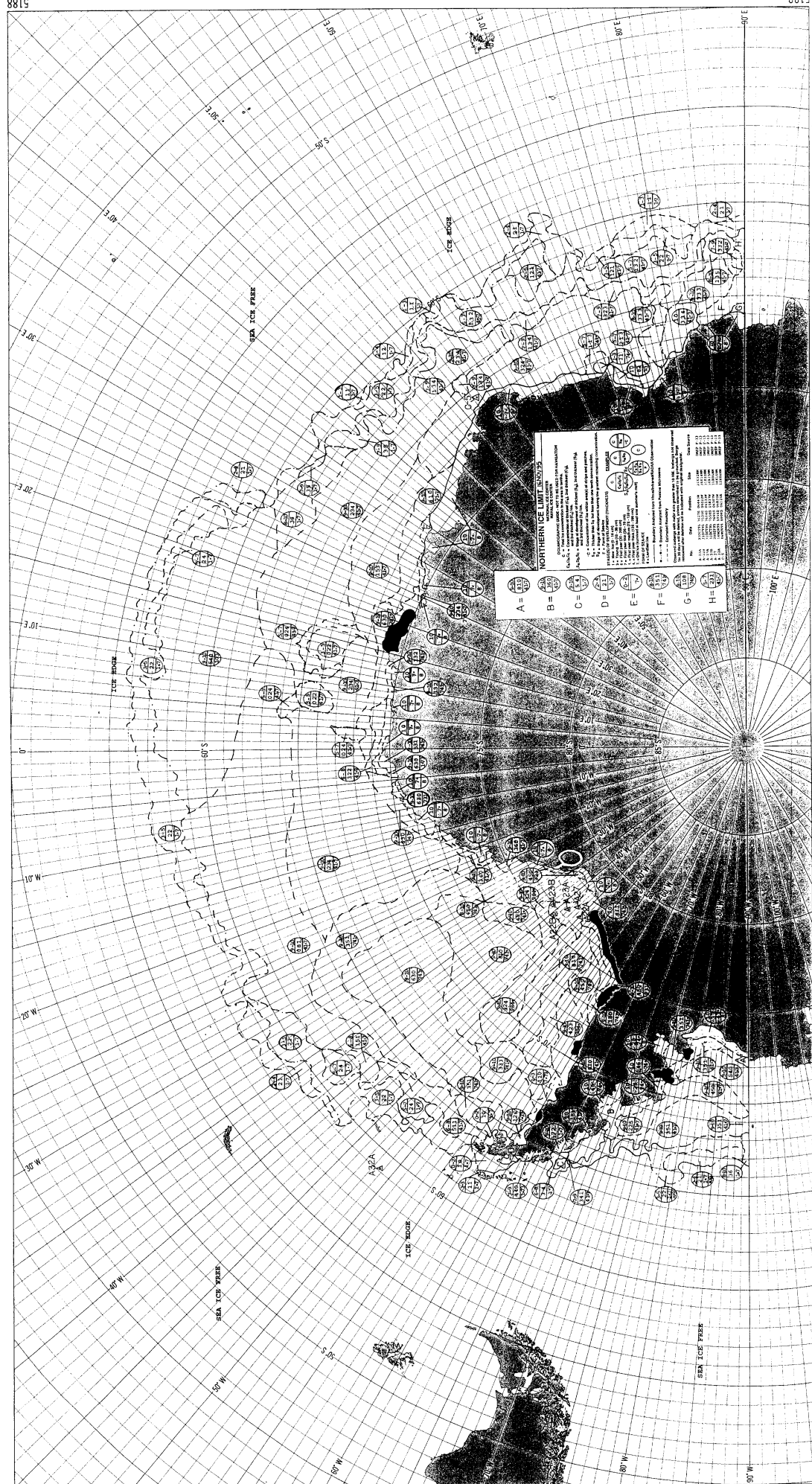


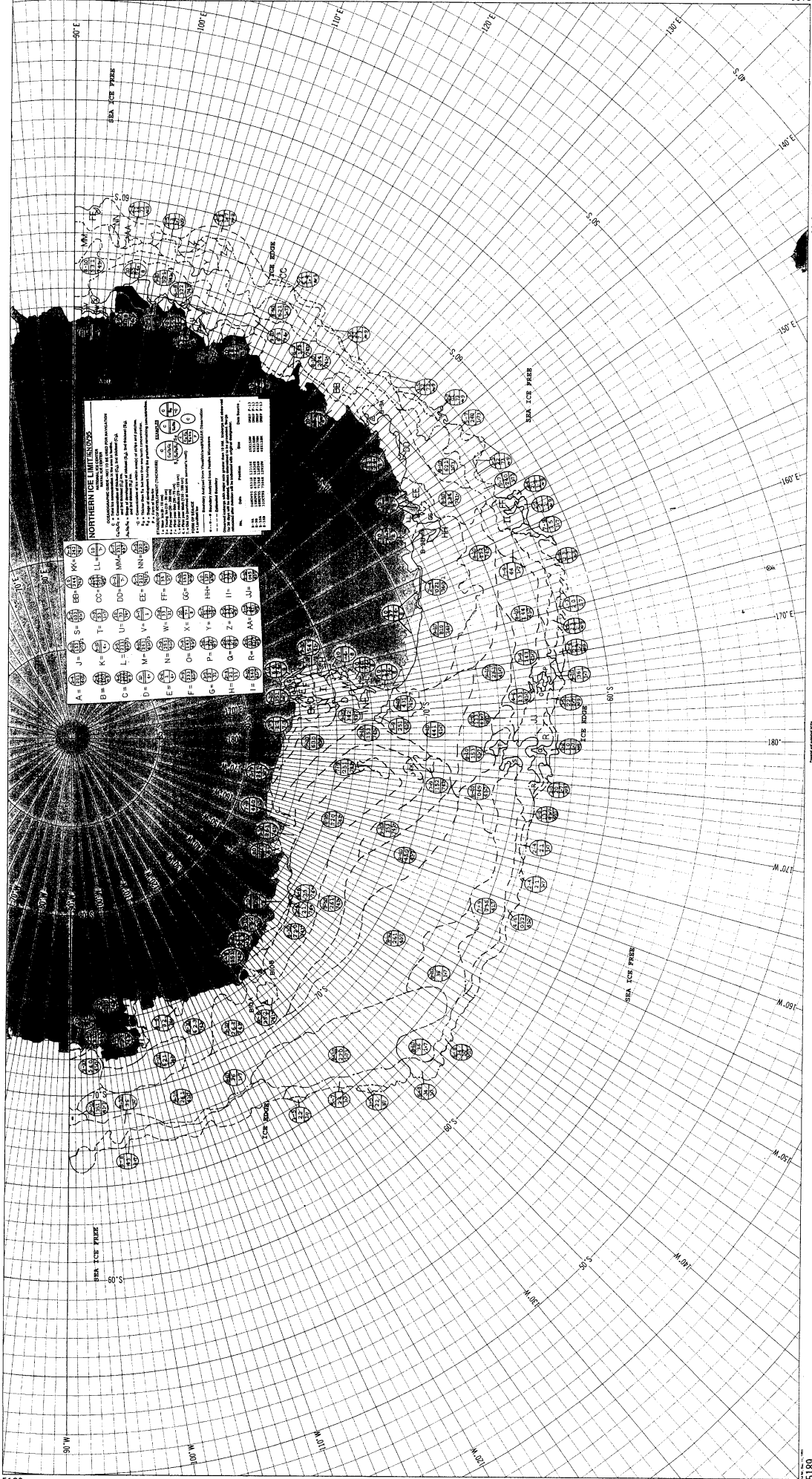


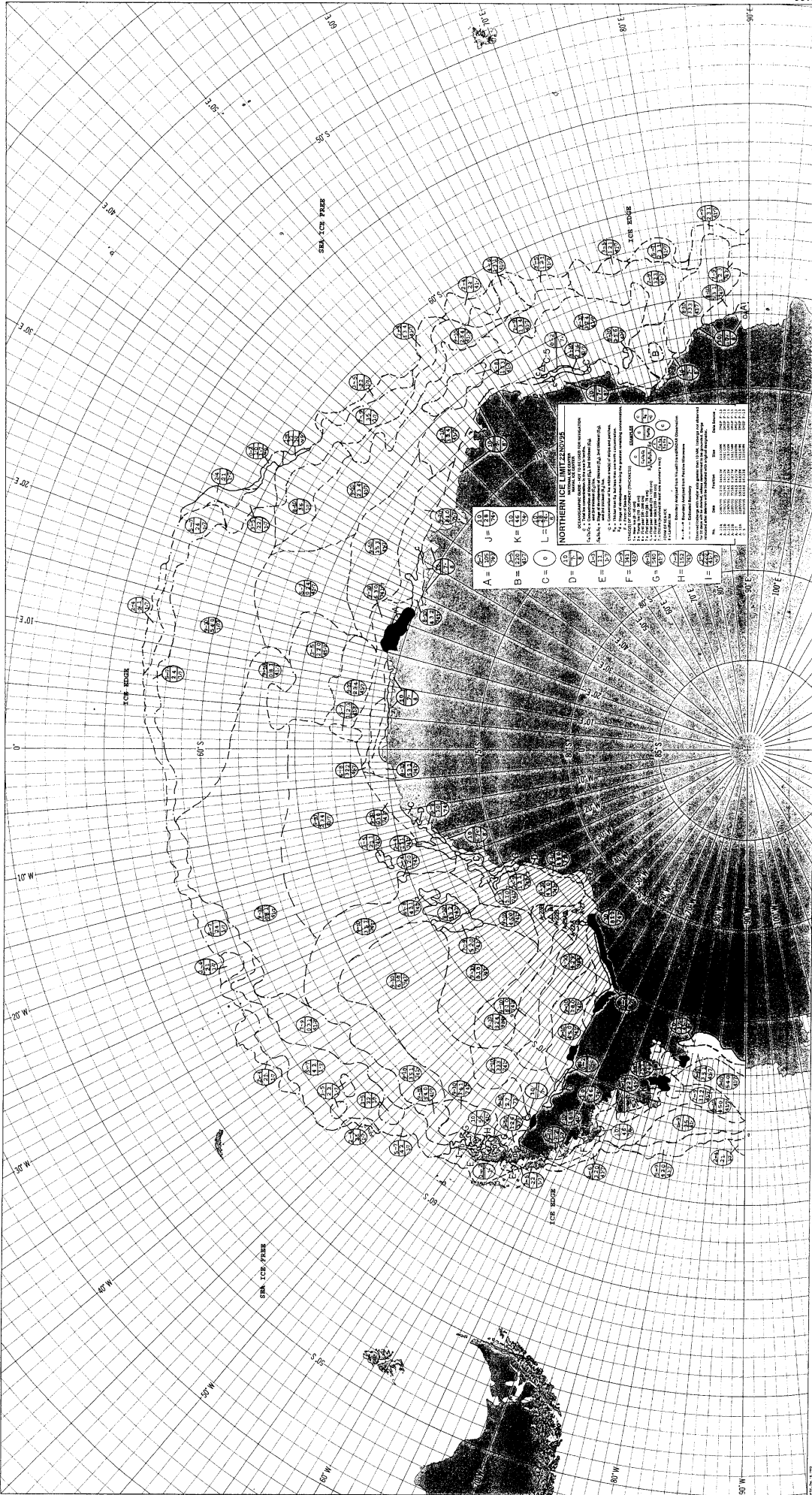


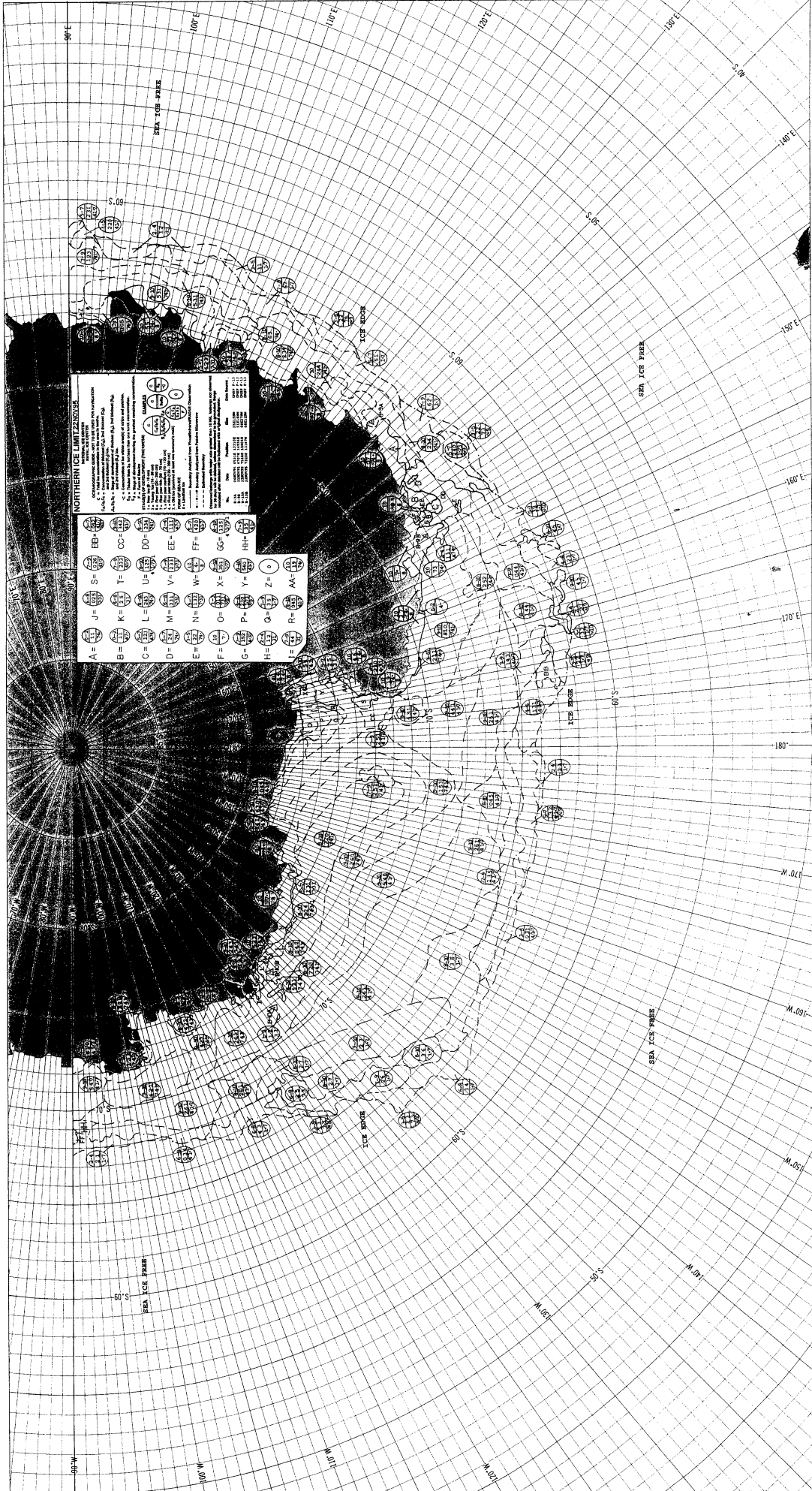












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